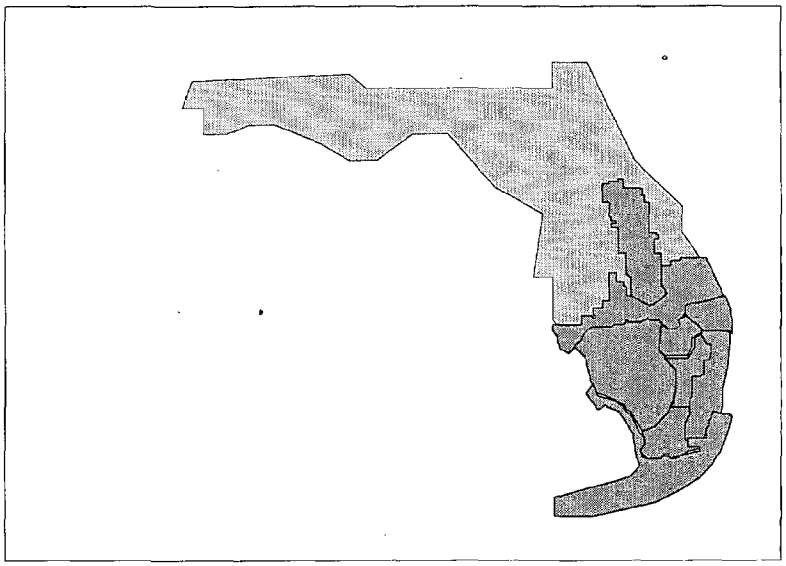
Interagency Spatial Information Workshop on the South Florida Ecosystem, Volume I

Workshop Proceedings

West Palm Beach, Florida - September 22-23, 1994



South Florida Ecosystem Restoration Area

May 1995

Wetlands Subcommittee
Federal Geographic Data Committee

Florida Marine Research Institute
and the Office of Ecosystem Management
Florida Department of Environmental Protection

National Biological Service

National Marine Fisheries Service
and the National Ocean Service
National Oceanic and Atmospheric Administration

Science Subgroup
South Florida Ecosystem Restoration Task Force

South Florida Water Management District

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The persons identified in italics above were the principal participants on the report team. Tom Culliton and Dave Lott were responsible for designing and producing the proceedings, including the development of the appendices in Volume I. They also wrote portions of the text. Pam Rubin (NOAA) provided assistance in the final editing and formatting of the proceedings.

Ken Haddad and Jim Thomas provided guidance, developed text, and provided critical reviews of the document. Peggy Mathews reviewed the proceedings and helped develop the summary matrices. Wiley Kitchens and Leonard Pearlstine (National Biological Service) reviewed the proceedings and were responsible for printing the document. Thanks also go to Paulette Davis (Florida Department of Environmental Protection) who organized and assembled much of Volume II.

Acknowledgments

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Most importantly, we also acknowledge the efforts of the individuals who presented information at the workshop. They include Mike Slayton of the South Florida Water Management District, Colonel Terrance Salt of the U.S. Army Corps of Engineers representing the South Florida Ecosystem Restoration Task Force, Tom McCulloch of the U.S. Geological Survey representing the Federal Geographic Data Committee, Marlyn Dawson of the Florida Information Resource Commission, and Superintendent Dick Ring of Everglades National Park.

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Executive Summary

This document intends to provide an accurate summary of the discussions and recommendations of the workshop participants, and to provide a point of reference for the continuing development, organization, and exchange of spatial data information in the South Florida ecosystem. The workshop was sponsored by the Florida Department of Environmental Protection, the South Florida Water Management District, and the South Florida Ecosystem Restoration Task Force and the Wetlands Subcommittee of the Federal Geographic Data Committee.

Introduction

The Executive Summary provides an overview of the findings and recommendations of 80 senior resource managers, scientists, and data managers who attended a two-day workshop in West Palm Beach, Florida on September 22 and 23, 1994, to begin discussions about improving program communication and coordinating the development and use of spatial data information in South Florida. This report describes the format of the workshop and the discussions and recommendations developed by the work groups. Also included are proposed actions for the development, distribution, and use of spatial information in South Florida.

The workshop was organized as a result of the myriad governmental programs focusing on the restoration of the South Florida ecosystem. Program identification and information exchange is a prerequisite for successful implementation of any restoration strategy. To initiate the information exchange process, the Florida Department of Environmental Protection (FDEP), the South Florida Water Management District, and the South Florida Ecosystem Restoration Federal Task Force (Federal Task Force) sponsored the Interagency Spatial Information Workshop.

The workshop was also identified by the Federal Geographic Data Committee (FGDC) as a means of highlighting the importance of, and requirements for, spatial data standards. This committee is responsible for establishing content standards for Federal agencies using spatial data. These standards provide a consistent approach and format for the description of data characteristics. More than one-half of the spatial programs identified in this workshop are Federal and will eventually need to comply with the FGDC requirements.

The Workshop Process

The workshop was designed as a series of structured work sessions through which participants could reach consensus on how to improve interagency program communication, spatial data access, and information exchange. Participants were organized into the sessions based primarily on expertise. In addition, the workshop participants reviewed information on existing spatial programs for accuracy and completeness, identified missing programs and/or potential data needs, and targeted programs with the potential for integration. The workshop consisted of four facilitated sessions on Day 1 and three on Day 2. Plenary sessions were held at the beginning and end of each day.

Day 1
Work Group 1: Biotic
Work Group 2: Abiotic
Work Group 3: Water
Work Group 4: Human Activities

Day 2
Work Group A: Interagency Program Communication
Work Group B: Spatial Data and Information Access/Exchange
Work Group C: Program and Spatial Data Integration and Ecosystem Management

Objectives

The workshop endeavored to set the stage for long-term interagency cooperation and information exchange among the programs developing or using spatial data in South Florida. The primary objectives were to:

- identify current and planned programs and activities with respect to the collection of spatial data and information (i.e., geographically referenced features that are described by geographic positions and attributes for the South Florida ecosystem);
- identify programs and activities for integration and for gaps in spatial information needed to address the defined issues and management objectives;
- identify mechanisms to ensure continued and updated communications among individuals and programs regarding collection, availability, and accessibility of spatial data of the South Florida ecosystem; and
- initiate planning for the integrated collection, transfer, sharing, and analysis of spatial data needed to address issues and management objectives.

Summary of Workshop Components

Information Survey Assessment. Workshop participants were divided into four groups on Day 1 to evaluate the accuracy and completeness of the program information survey results. Participants reviewed the information survey results, identified missing programs, assessed programs for similarities, and identified perceived or observed programmatic data gaps needed for ecosystem management. A plenary session was held at the end of the day to discuss group results.

Interagency Program Communication. This work session addressed the needs and mechanisms to facilitate communication between agencies (and within agencies) so that all interests (including the public) have the opportunity to know what activities and programs exist or are planned in the South Florida ecosystem. The focus was on programs that generate, collect, or gather spatial data and information. The session also addressed the role, authority, and commitment of the agencies to facilitating communication and developing an effective baseline survey of the aforementioned programs. In addition, interagency program communication was considered a prerequisite to the effective exchange of data and information for technical applications and South Florida resource management.

Spatial Data and Information Access/Exchange. This group focused on a series of topics related to spatial data and information access/exchange. The group identified the primary issues associated with, and recommendations for, addressing each topic (e.g., type of action(s) required, responsible institution(s), timing of action, etc.).

Program and Spatial Data Integration and Ecosystem Management. This work session focused on the integration of programs and spatial data in the South Florida ecosystem. The primary objective was to identify methods for integrating programs and spatial data that address South Florida ecosystem management objectives. A secondary objective was to develop an outline for developing a pilot or series of pilot projects that link ecosystem management objectives to programs and spatial data.

Recommendations

The workshop resulted in a number of proposed actions for the development, distribution, and use of spatial information in South Florida. They can be summarized as follows: 1) completing the workshop inventory and developing an update process; 2) integrating spatial programs where appropriate; and 3) making spatial information available for ecosystem restoration. These recommendations resulted from the workshop's consensus-building process.

The workshop participants all agreed that the *inventory* was useful and that it still needs to incorporate many of the programs that were identified as missing. It was clear that full state, regional, and local participation is required. All current and planned academic programs and activities collecting spatial information also need to be surveyed. In addition, this information must be updated and maintained if the communication of ongoing activities in South Florida is to be successful in the long term. The participants determined that these efforts should be sanctioned and encouraged by the Federal Task Force and the Governor's Commission.

Participants also agreed that the *coordination and integration of programs* is essential to ecosystem restoration. Participants recognized that a common set of priority spatial needs, agreed to by all agencies involved in the restoration effort, needs to be established. In addition, the participants determined that an ad-hoc group under the direction of the Governor's Commission and the Federal Task Force should immediately develop a pilot project for the Taylor Slough-Florida Bay region to demonstrate the efficacy of building and synthesizing spatial information to address management issues, and make such information available via the Internet and CD-ROM. These same groups should also create and empower a work group to be responsible for coordinating and integrating spatial data in the entire South Florida region.

The *need for access to spatial information* was also highlighted by the participants. The FGDC should be asked to strongly encourage all agencies using spatial data in South Florida ecosystem restoration to commit to program coordination and sharing of digital data and technologies. Workshop participants also recommended that the Federal Task Force mandate the use of FGDC metadata and spatial data transfer standards for each of its agencies in South Florida. A formal recommendation by the Governor's Commission of the use of these standards by state, regional, and local agencies is also essential. Finally, the need for a focal point or clearinghouse of information on spatial programs was highlighted by the work groups. Participants recommended that the information developed through the information surveys be made available on the Internet.

For a more detailed summary of the workshop participants recommendations, see pp. 27-29.

Interagency Spatial Information Workshop

This workshop highlighted the importance of interagency spatial information in the implementation of management strategies affecting the South Florida ecosystem. It set the stage for long-term interagency cooperation and information exchange among the programs developing or using spatial data in South Florida. About 80 representatives, primarily managers, from Federal, State, regional, and local agencies participated. The workshop focused on reaching consensus among the participants about how to improve program communication, enhance data access/exchange, and promote integrated program efforts. In addition, the workshop resulted in the development of a comprehensive summary of spatial programs and data that would be useful in the ecosystem restoration effort. The workshop represents a first step toward assembling the types of information and data exchange mechanisms that will be useful in the ecosystem restoration process.

History of the Project

The scale and scope of the South Florida ecosystem places a high priority on spatial data information. Both the South Florida Ecosystem Restoration Federal Task Force (Federal Task Force) and the State recognize that a focal point is required for spatial information. As a result, this workshop was developed as a mechanism for beginning the process to establish a framework for improving knowledge about, and access to, spatial information. In addition, the Wetlands Subcommittee of the Federal Geographic Data Committee (FGDC) served an integral role in workshop planning and implementation, because of the meeting's focus on spatial data.

As a result of these Federal and State concerns, an ad-hoc South Florida Spatial Information Team was established to facilitate a process to encourage multi-agency participation in the identification, cataloging, and distribution of spatial information for the South Florida ecosystem. The team is comprised of representatives of the Wetlands Subcommittee of the FGDC, Florida Department of Environmental Protection (FDEP), South Florida Water Management District, Science Subgroup of the Federal Task Force, and the National Oceanic and Atmospheric Administration (NOAA). The team's principal objectives are to: 1) catalog background information about regional programs collecting spatial information and to make this information available for use in South Florida restoration efforts; 2) enhance coordination and communication between regional and spatial programs—especially those that have overlapping responsibilities; and 3) encourage and facilitate the use of FGDC spatial data transfer standards for the spatial groups of South Florida.

Private and nonprofit partners will be included in the larger effort after considerable progress has been made with the interagency programs. Because the current effort focuses to a large degree on programmatic integration, it did not seem appropriate to include private and nonprofit entities. However, academic and private efforts have much to offer the restoration effort and will be included in the process at a later date.

Workshop Objectives

The workshop intended to set the stage for long-term interagency cooperation and information exchange among the programs developing or using spatial data in South Florida. In addition, it served as a useful means of highlighting the importance of spatial data in the restoration effort. The primary objectives were to:

- identify current and planned programs and activities with respect to the collection of spatial data and information (i.e., geographically referenced features that are described by geographic positions and attributes for the South Florida ecosystem);
- identify programs and activities for integration and for gaps in spatial information needed to address the defined issues and management objectives;
- identify mechanisms to ensure continued and updated communications among individuals and programs regarding collection, availability, and accessibility of spatial data of the South Florida ecosystem; and

- initiate planning for the integrated collection, transfer, sharing, and analysis of spatial data needed to address issues and management objectives.

Background on South Florida Issues

The project study area is the same as that used in the Federal Task Force's ecosystem restoration effort. The restoration area encompasses approximately 28,000 km^2 and is divided into nine watershed regions (Figure 1). They include: the Kissimmee River Basin; Lake Okeechobee and Okeechobee Waterway Estuaries; Loxahatchie River Region; Everglades Agricultural Area; Water Conservation Areas; Big Cypress Watershed; Everglades National Park; C-111 Basin, Card Sound, Biscayne Bay, and the Florida Keys; and the Lower East Coast Urban Area. The Federal Task Force has since identified a tenth region from Lake Okeechobee and Okeechobee Waterway Estuaries and the Big Cypress Watershed areas. Information in future team efforts will be organized by these 10 regions.

South Florida is a heterogeneous system of wetlands, uplands, coastal areas, and marine areas, dominated by the watersheds of the Kissimmee River, Lake Okeechobee, and the Everglades. Prior to drainage, wetlands dominated the ecosystem, covering most of central and southern Florida (Science Subgroup, 1994).

The wildlife abundance of predrainage South Florida was maintained by the complex annual and long-term hydrologic patterns of the natural system, as expressed in wet-dry cycles, drying and flooding rates, surface water and water depth patterns, annual hydroperiods, flow volumes, and, at the coast, salinity and mixing patterns. Superimposed over the periodic changes were sporadic events such as storms, fires, and freezes, which helped to establish and maintain habitat heterogeneity. Wetland productivity was dependent on dynamic storage and sheet flow, large spatial scale, and habitat heterogeneity (Science Subgroup, 1994).

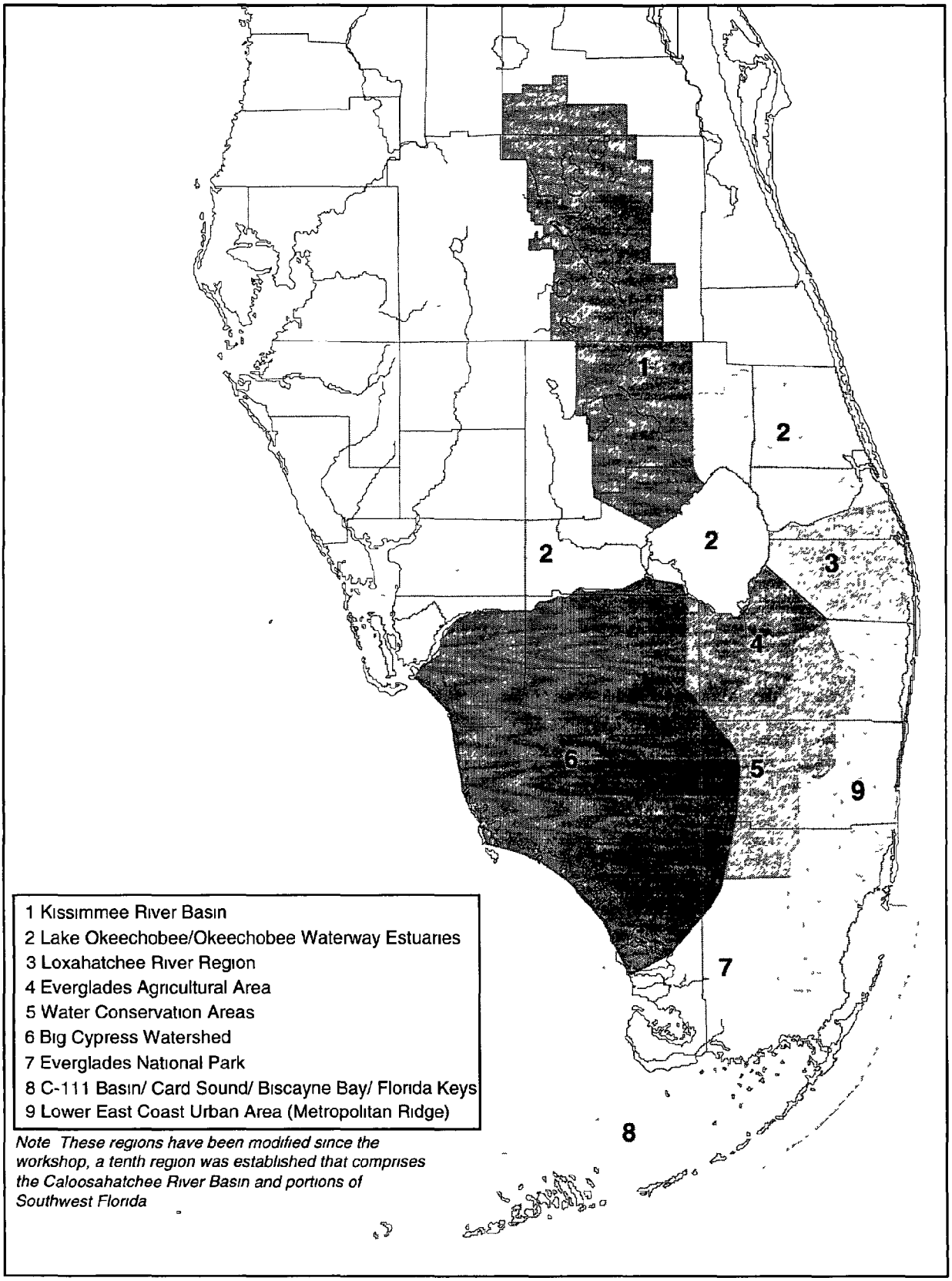
Human alterations in the hydrologic system beginning in the late 1800s and continuing to the present day have created water quality and water quantity problems for South Florida's natural systems, including the Everglades and the estuaries. Hydroperiods and hydropatterns, which relate to the duration, timing, and extent that wetlands are wet, have been greatly distorted. The quantity, timing, and location of freshwater flow to estuaries have been greatly modified. Excess nutrients and contaminants add to the problems experienced by living organisms in both the wetlands and the estuaries. The pace of deterioration seems to be increasing. Known wildlife populations are now a fraction of their original size of even 30 years ago. Florida Bay is experiencing obvious catastrophic change manifested in massive seagrass die-offs and noxious algal blooms. Even the Florida Keys reef tract is not immune to probable land-based detrimental influences.

The regional human population currently exceeds 5 million and is expanding rapidly. Tourism is a major industry, much of the area's attraction being due to remaining natural areas and their living resources. Agriculture, consisting primarily of sugarcane, winter vegetables, and citrus, form another significant industry. Most of the population of South Florida is concentrated along the lower east coast in Palm Beach, Broward, and Dade Counties. This is the most heavily urbanized area not only of South Florida, but the entire state. Southwestern Florida, however, is growing at a faster rate (Science Subgroup, 1994).

This expanding human presence has dramatically changed the South Florida ecosystem. In addition to the hydrologic alterations, the changes include an increasing water demand by agricultural and urban uses, while at the same time, the water supply has actually been decreased by the conversion of land to agricultural and urban uses and by shunting to the coast of freshwater that previously was stored in wetlands, soils, and aquifers (Science Subgroup, 1994).

Other changes are water quality and treatment problems, soil subsidence in the Everglades Agricultural Area, nutrient enrichment, pollution by contaminants, invasion of nonnative plants and animals, fragmentation of habitats and landscapes, loss of wetland areas and functions, altered fire regimes, and declines in reef and estuarine resources (Science Subgroup, 1994).

Figure 1 South Florida Ecosystem Subregions



Note These regions have been modified since the workshop, a tenth region was established that comprises the Caloosahatchee River Basin and portions of Southwest Florida

The Workshop Process

Pre-workshop Planning. Preparation for the workshop required the participation of several agencies at the Federal, State, and regional level. The workshop was sponsored by the FDEP, the Federal Task Force, Wetlands Subcommittee of the FGDC, and the South Florida Water Management District. In addition, the National Biological Service and NOAA provided critical assistance. A team of professionals from these organizations met on several occasions to plan the workshop and assemble materials necessary for workshop implementation. Figure 2 outlines the workshop process.

In preparation for the workshop, information about Federal, State, and local programs was generated through a survey. Contacts were identified and given a one-page information survey with questions about the content, quality, and availability of the data included in their program (Figure 3). Substantial information about spatial programs was generated from the survey and at the workshop. The survey resulted in the development of information on over 150 programs that possess spatial data for the South Florida region.

A series of matrices were assembled after the initial survey was completed to enable workshop participants to review the information generated. Information was organized by agency and data group. Some of the information listed in the tables was inferred through interpretation of the information surveys.

Day 1. The importance of spatial information in the management of the South Florida ecosystem was discussed in the plenary session held during the morning of the first day. The objective of the session was to discuss the major ecosystem management efforts in South Florida and how spatial data are linked to these efforts. Summary information about Federal and State efforts related to ecosystem restoration were discussed. In addition, information about Federal and State data infrastructures were also summarized. In the afternoon, workshop participants were divided into four groups organized by data themes (abiotic, biotic, human activities, and water quality) to assess survey results. Participants reviewed the information survey results, identified missing programs, assessed programs for similarities, and identified perceived or observed programmatic data gaps needed for ecosystem management. A plenary session was held at the end of the day to discuss group results.

Day 2. The second day was organized into work groups in the morning and a group plenary session in the afternoon. Workshop participants were divided into three groups: 1) interagency program communication; 2) spatial data and information access/exchange; and 3) program and spatial data integration and ecosystem management. Each group focused on a series of predetermined topics using a structured process. Findings were presented and discussed during the afternoon plenary session.

The interagency program communication group focused on identifying the needs and mechanisms to facilitate communication between agencies. The group identified several issues or impediments to program communication. Strategies were developed to address each issue or impediment. These strategies described information prerequisites; required program commitments; incentives; interim, short-term, and long-term solutions; technologies; and funding requirements necessary for overcoming these issues or impediments.

The spatial data and information access/exchange group focused on several topics including: 1) identifying priority data gathering needs to support management of the South Florida ecosystem; 2) evaluating and implementing the ongoing development of standards for data accuracy and quality assurance; 3) identifying public access and sharing needs to improve dissemination of data; 4) evaluating interagency organizational needs in terms of GIS access requirements, training needs, and support structure; and 5) identifying data and product needs.

The program and data integration group focused on a series of topics that addressed spatial data integration and ecosystem management. The group focused initially on identifying management issues that impede the integration of programs and spatial data. The group also identified several pilot projects that could be undertaken to link ecosystem management objectives to a spatial data program.

Figure 2 The Workshop Process

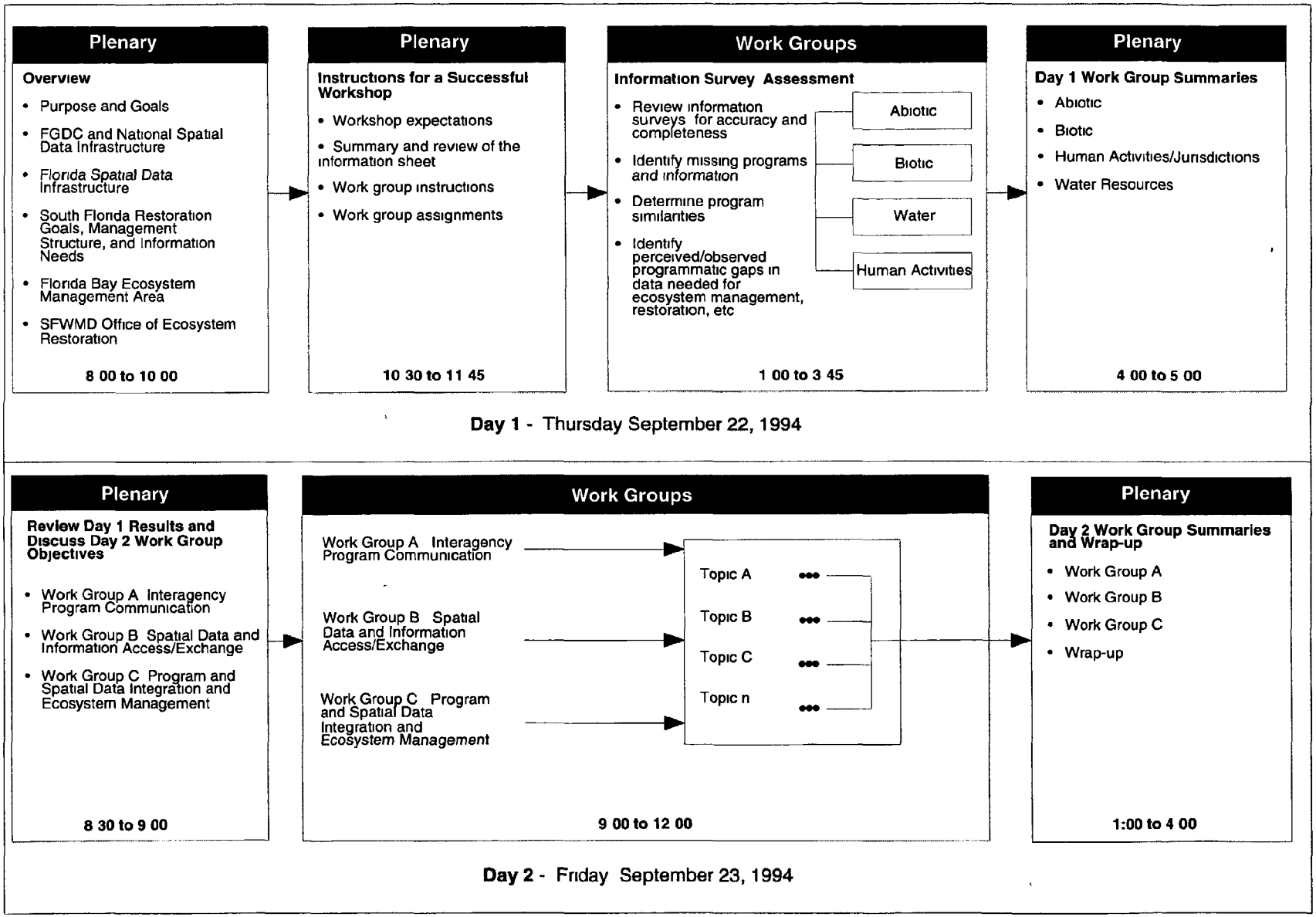


Figure 3. Example of Completed Information Survey

PROGRAM/PROJECT: Florida Marine Research Institute (FMRI) 1: Marine Resources

KEYWORDS: marine resources, phytoplankton, fisheries, marine habitat, marine invertebrates, marine research.

AGENCY: Florida Department of Environmental Protection, Division of Marine Resources, Marine Research Institute

SUMMARY: The FMRI conducts research and monitoring and collects technical data on south Florida coastal and marine resources for provision to resource managers.

GEOGRAPHIC AREAS(S): 8

ONGOING: Yes, multiple ongoing data collection efforts

PLANNED: Yes, Florida Bay monitoring enhancement-July 94

INFORMATION CONTENT: The FMRI is collecting data in the entire coastal region but at different levels in different regions. General projects developing data in Florida Bay (region 8) include: algal bloom mapping, phytoplankton distribution and production, juvenile and resident fish population monitoring, invertebrate surveys, water quality, circulation, benthic mapping of 26 community types, seagrass and macroalgae monitoring, endangered marine species monitoring, mangrove monitoring and mapping, coral monitoring, marine facilities locations, and commercial fishery landings.

OTHER DATA BEING USED IN PROGRAM: FMRI has been developing a GIS database for the region to be used by the public and researchers and managers. Information being used in digital formats are nautical charts, shoreline, NWI data, benthic maps, bathymetry, navigation aides, road networks, marine facilities, wildlife and endangered and threatened species locations, and scanned USGS 7.5 minute quads. The information is from a variety of federal, state, local governments and private entities.

DATA STORAGE: hardcopy_Y_ digital _Y_

DATA AVAILABILITY: currently being distributed and planned distribution

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Workshop Results

This section summarizes the results of the two-day workshop. It is organized into four parts: 1) information survey assessment; 2) interagency program communication; 3) spatial data and information access/exchange; and 4) program and spatial data integration and ecosystem management.

Day 1 Information Survey Assessment

The purpose of the Day 1 working groups was to evaluate data from the information surveys and to identify missing programs or data gaps. Workshop participants were assigned to groups based on their expertise. However, some participants were assigned to groups outside of their expertise in order to achieve balance among the groups.

The afternoon work-group session was conducted using a four-step process. First, the information survey results were reviewed to determine if the results were interpreted accurately. Second, programs that were not captured in the survey were identified. This step required the most time because it involved considerable discussion about identifying missing programs. Third, programs having similar or overlapping objectives were identified. Fourth, perceived or observed gaps in data needed for ecosystem restoration and management were identified. Each of the group leaders summarized the work-group results at the Day 1 afternoon plenary.

Work-group Tools. Workshop participants were provided with four matrices for use in their groups. The first table (Figure 4) summarized the information collected from the information surveys and was used to evaluate the data transfer/interpretation process. The second table (Figure 5) organized programs by data group and was used primarily to identify missing programs, although it was also useful for evaluating data transfer and interpretation. The third table was intended for use in identifying overlapping programs or those with key similarities. The fourth table was used to identify additional data needed for management.

A list of data categories was developed prior to the workshop (Table 1). They provide an organized method for summarizing spatial programs. Also, the categories provide some indication of the availability of spatial

Table 1. Data Categories

Abiotic Environments (A)		**Human Activities/Jurisdictions (H)**	
Air Quality	AQY	Agriculture	AGR
Beaches/Shores	B/S	Contaminated Sites	CON
Climatology/Meteorology	C/M	Cultural Sites	CS
Geologic	GEO	Oil/Hazmat Spills/Groundings	HAZ
Hydrography	HYG	Industry	IND
Seafloor Characteristics	SEC	Land Use	LU
Soils/Substrates	S/S	Population/Housing	P/H
Topography/Bathymetry	T/B	Recreation	REC
		Transportation	TRN
Biotic Environments (B)		Political/Jurisdictional Boundaries	P/JB
Submerged Habitat	SUB	Protected Areas	P/P/R
Endangered/Threatened Species	E/T		
Exotic Species	EX	**Water (W)**	
Fish	FIS	Hydrologic Information	HYL
Invertebrates	INV	Runoff (non-point sources)	NPS
Land-cover	LC	Wastewater Discharge (point)	WWD
Phytoplankton/Zooplankton	PHY	Water Control Structures	WCS
Upland Habitat	UPH	Water Quality	WQL
Wetland Habitat	WET	Water Use	WUS
Wildlife	WIL		
Birds	BIR		

Figure 4. Example of Information Survey Summary Table

				Geographic Coverage (regions)									Timing		Data Storage		Data Availability/Completeness								Characteristics									
Agency ID	Page #	Program	Data Category	1 - Kissimmee River Basin	2 - Lake Okeechobee Waterway	3 - Loxahatchee River Region	4 - Everglades Agricultural Area	5 - Water Conservation Areas	6 - Big Cypress Watershed	7 - Everglades National Park	8 - C111 Basin, Card S., Bisc. Bay, FL Keys	9 - Lower East Coast Urban Area	Ongoing	Planned	Hard Copy	Digital	Being Distributed	Planned for Distribution	Not Available	Data is Clean	Data Need Some Work	Data Need Lots of Work	Unknown	Other Data Being Used in Program	Contaminants	Abundance	Distribution	Status and Trends	Freshwater-surface	Freshwater-ground	Saltwater-surface	Saltwater-ground	Information Content/Summary	Contact
FEDERAL																																		
Army Corps of Engineers																																		
ACOE-1	5	Water Management Decision Support System (Jacksonville District)	A(CM), W(HYL,SWF)	√	√	√	√	√	√	√	√	√	√			√	√										√		√				Water surface elevation; cumulative precipitation	K. Jones (904) 232-1786
ACOE-2	6	Central and S. Florida Project Restudy (A) (Jacksonville District)	W(WCS), H(P/H),			√	√	√	√			√	√		√	√	√							Bureau of the Census TIGER & STF1B files; USGS DLG transportation & hydrography files; Florida land use; PLSS of SFWMD			√						Housing unit density; Central & Southern Florida project features; land use; census blocks; transportation: network; hydrography	R. Sutton (904) 232-2743
ACOE-3	7	Central and S. Florida Project Restudy (B) (Jacksonville District)	B(WET, LC)		√		√	√		√			√		√	√	√							Davis '43 vegetation map; Davis '94 vegetation map			√						Historic wetland communities of Southern Florida.	L. Manners (904) 232-3923
ACOE-4	8	Survey Branch/Engineering Division (Jacksonville District)	A(HYG, T/B)	√	√	√	√	√	√	√	√	√	√		√	√	√										√						Historical and current hydrography and topography	H. Rimmer (904) 232-1806
ACOE-5	Append 3	Coast of Florida Erosion & Storm Effects Study (Jacksonville District)	A(B/S, GEO, SEC, T/B, HYL)									√	√			√		√			√			Outputs from various numerical modelling efforts have been used including: Wave Information Study, GENESIS, SBEACH, & Storm-Damage			√						A comprehensive body of knowledge on the processes and environmental resources along the Florida Atlantic Coastline will be developed in study	J. Holt (904) 232-1695
ACOE-6		Regulatory Analysis & Management System	B(WET)	√	√	√	√	√	√	√	√	√	√	√	√	√						√					√						Permitted wetland impacts & reauthorized wetland impacts (acreage); type & quantity of wetland mitigation; enforcement actions & restorations; project locations	N. Show (904) 232-1673

Figure 5. Example of a Data Assessment Summary Table

				Group				Water: Hydrologic Information				Runoff (N.P.S.)				Water Control Structures				Wastewater Discharge(P. S.)				Water Quality				Water Quantity				Water Use												
Evaluated	Agency	Page #	Program	A	B	H	W	Geog. Coverage	Timing	Characteristics	Completeness	Geog. Coverage	Timing	Characteristics	Completeness	Geog. Coverage	Timing	Characteristics	Completeness	Geog. Coverage	Timing	Characteristics	Completeness	Geog. Coverage	Timing	Characteristics	Completeness	Geog. Coverage	Timing	Characteristics	Completeness	Geog. Coverage	Timing	Characteristics	Completeness	Geog. Coverage	Timing	Characteristics	Completeness	Geog. Coverage	Timing	Characteristics	Completeness	Agency
FEDERAL																																												
Army Corps of Engineers																																												
	ACOE-1	5	Water Management Decision Support System (Jacksonville District)	•			•	1-9	O	D																																		ACOE-1
	ACOE-2	6	Central and S. Florida Project Restudy (A) (Jacksonville District)			•	•									3-6,9	O	D																										ACOE-2
Environmental Protection Agency																																												
	EPA-1	10/11	Everglades Mercury Study (REMAP)	•	•		•																	4-9	O	C	LW																	EPA-1
	EPA-2	12	Environmental Monitoring and Assessment Program (EMAP) - Estuaries	•	•		•																	2,3,5,8,9	P	C, A, D, S																		EPA-2

data for the primary management needs in restoration efforts. Data categories were arranged into four groups based on similar characteristics: 1) abiotic resources; 2) biotic resources; 3) human uses and activities; and 4) water resources. Detailed definitions of each category appears in Appendix A. A summary of formation tabulated by data category appears in Appendix C.

In addition, a set of data characteristics was also developed to provide additional background information about the program's information content. The objective was to characterize the focus of the information content (e.g., Does the program's data focus on freshwater or saltwater resources? Does it include status and trends type information? Does it include information on some type of contaminants?). Definitions of the data characteristics are included in Appendix A. Appendix B lists the characteristics for each of the programs surveyed.

All of the tabular materials were revised after the workshop. The materials were revised primarily as a result of workshop commentary.

Part 1 - Review Information Survey Transfer Process

Overall, participants agreed that the information gathered seemed to be accurate and complete. The interpretation of the data from the information surveys to the tabular summaries was also acceptable. However, the groups noticed a number of problems including the following:

- The format of the information survey did not provide sufficient detail to identify program similarities.
- The participants recognized that the identification of data categories and characteristics through interpretation of the survey was often difficult.

- Information is lacking on the scale for which the data are intended. Information explaining that the data are part of a local, regional, state or national data set is required.

- Information about when the data were collected or developed is necessary.

- The groups determined that several data categories were missing, unnecessary or redundant to others. For example, the Water Resources group recommended that water reuse and aquifer storage/recovery be added as two additional data categories. They also recommended the deletion of the water quantity category since it was redundant to hydrology. The Biotic Environments group recommended merging the aquatic and wetland habitats categories into one; creating a new category for birds (separating them from wildlife); and combining zooplankton and phytoplankton into one category.

- The data characteristics included in Figure 4 (i.e., contaminants, abundance, distribution, status and trends, freshwater, and saltwater) were considered to be vague. The Water Resources group recommended that the freshwater and saltwater characteristics categories be changed to groundwater (fresh), groundwater (salt), surface water (fresh), and surface water (salt).

Part 2 - Identifying Missing Programs

In this step, each of the groups reviewed programs listed in each of the data categories. A number of programs not captured in the initial survey were identified by participants. Information surveys were completed for some of these programs after the workshop.

The *Abiotic Environments* group identified several programs that collect or organize abiotic data that were not captured in the inventory. This group focused on programs that relate or pertain to physical environmental features or characteristics in the South Florida ecosystem. The missing programs included: NOAA satellite data and its nautical charting program; the FDEP's Mercury program; the Army Corps of Engineers' Coast of Florida Study and a geological project; air quality monitoring by the National Park Service in the Everglades; and marine geological research by the U.S. Geological Survey.

The *Biotic Environments* group also identified several programs not captured in the inventory. This group focused on the biological resources of the ecosystem.

The *Human Activities/Jurisdictions* group identified numerous federal, state, and local programs. This group focused primarily on data categories and identified programs that were missing in each. This group identified several programs for most of the data categories.

The *Water Resources* group identified several missing programs. This group focused on those programs that collect or organize spatial information related to the quality or distribution of water resources in the South Florida ecosystem. This group identified the Army Corps of Engineers' Coast of Florida Study and Section 404 Permits program; the C-111/Taylor Slough project; and the Kissimmee River Restoration program.

Part 3 - Identifying Program Similarities

Three of the four groups determined that too much sorting would be required to adequately carry out this step. A general recommendation was that simple lists of programs by characteristics or geography would be helpful. However, the Abiotic Environments reviewed the programs listed in each of the data categories and identified those that might have overlapping or similar activities.

Per the workshop commentary recommendations, Appendix D lists programs that were identified for each of the data categories. Although the programs may not overlap in terms of activities and types of data being collected or organized, the lists provide some indication of the focus of spatial programs. In addition, they identify where there is an abundance of data and where information is lacking. For example, the hydrologic and wetland habitat categories include 39 and 29 programs, respectively. This indicates that integration should occur, for a few selected programs, to make more efficient use of public resources.

Part 4 - Additional Data Needed for Management

The objective of this session was to identify the types of spatial data currently not available that would be useful in the restoration process. These are spatial data that are currently not available or accessible. In addition, participants were not allowed to identify needs that would be included in any of the four work groups. Listed below are the data needs identified by the four groups.

Hydrology/Modelling. Better information is needed on historical hydrological data modelling efforts; better hydrological data is needed for planning purposes (i.e., planning for future water supplies). Information on water circulation and mixing in Florida Bay is needed. An inventory of South Florida hydrological models and their associated data needs should be conducted.

Solid/Hazardous Waste. Better information is needed about solid waste site capacity and its relationship to projected population growth. The proximity of waste sites to wetlands should be identified. The locations of waste incinerators need to be compiled. Incinerator "impact areas" also need to located and mapped. Groundwater contamination plumes and deep well injection site information needs to be available. Also needed is spatial information about abandoned waste site locations.

Offshore Activities. An inventory of oil spills in the ecosystem should be conducted. A database should be compiled on ship groundings and the locations of derelict vessels. Sites and boundaries of offshore dump (dredge spoil/other) sites need to be identified. This should include historical information on materials dumped at the sites. Information should be acquired on petroleum exploration leases, including both onshore and offshore leases.

Public Facilities. Location information is needed on power lines, oil and gas pipelines, and the locations of water control facilities. Data is needed about runoff characteristics between pervious and impervious substances (considered critical for land use planning).

Bathymetry. Improved bathymetric resolution is required for Florida Bay. Also, nearshore bathymetric information is required in the Bay.

Summary of Day 1 Work groups

The overriding theme from this session is that better consistency and compatibility between data sources is required. As a result, improved lines of communication between programs need to be established, and efforts coordinated where appropriate. In addition, participants agreed that a clearinghouse of data is required.

It was noted that a data dictionary summarizing programs identified through the workshop process would be useful. Such a reference should be easily accessible; should provide standardized information about each program; and ideally would provide information from a variety of perspectives (e.g., area of coverage, data category, data completeness, etc.).

Day 2 Interagency Program Communication

This work session addressed the needs and mechanisms to facilitate communication between agencies (and within agencies) so that all interests (including the public) have the opportunity to know what activities and programs exist or are planned in the South Florida ecosystem. The focus was on programs that generate, collect, or gather spatial data and information. The session also addressed the role, authority, and commitment of the agencies to facilitating communication and developing an effective baseline survey of the aforementioned programs. In addition, interagency program communication was considered a prerequisite to the effective exchange of data and information for technical applications and South Florida resource management. Three session issues were discussed. With the impediments to program exchange in consideration, the participants were asked to develop solutions to those impediments.

Impediments

It was acknowledged by the work session members that interagency program communication is an important and relevant topic and that the effective exchange of program information and activities is currently inadequate. The following were identified as impediments to accomplishing interagency program communication and adequate completion and coverage of the information surveys.

- Some organizations don't make an effort to know what goes on beyond their own programs and remain single-minded in their mission. Effective interagency and external communication and exchange of information about their programs is perceived as a hindrance to their mission.
- It is a bother to communicate. Communication about programs and exchange between programs is considered a burden and therefore the extra effort often does not occur, even though the need is recognized.
- Everyone has different communication methods and they often result in redundancy, lack of effective communication, and displeasure at the resultant effort required to communicate.
- Communication is perceived as negative and may impact them or their program.
- Filling out the program and activity information surveys that form the baseline for effective program communication was not a priority to some of the contacts. They saw no gain.
- Individual agencies, in many cases, did not coordinate the request for information survey completion. It was difficult to determine who in a given organization should receive and be responsible for appropriate handling of the requested information.
- The request was not clear and did not adequately describe the benefits to potential participants. The title of the effort was misleading and implied that the focus was on data management and managers.
- It was not well articulated as to what the information surveys were to be used for. It was not intuitively understood that in order to develop an integrated management approach to the large scale of the South Florida ecosystem, the scope of current activities form an important information base.
- Information surveys and requests were not sent to all pertinent agencies.

General Comments

It was determined that the program information surveys were a critical element to the goal of program information exchange and they should be enhanced in coverage. Often there is a need to find information quickly and knowledge of where to look and who to contact is not readily available, even within individual agencies. There was concern that it may be difficult to keep the information current. It was observed that the information must be made easily available in a variety of media. A very important component of reaching success relative to

program information exchange will be the satisfaction of contributors seeing something important for them in the process.

The session participants also felt that the effort to expand and complete the program information should stay with current and planned programs. It was considered too big a task to concurrently try to initiate an effort to assess and develop information on past programs. There was some question as to how the coordinating effort initiated through program information exchange relates to the seemingly myriad competitive efforts to coordinate. Participants were asked to address, at a minimum: 1) information prerequisites, 2) individual program commitments, 3) incentives to ensure participation, 4) institutional participation, 5) interim and short-term/long-term solutions, 6) what role technologies should play, and 7) funding requirements.

Issue 1. How do we enlist full participation in providing program information?

The session participants determined that the full participation of the various agencies with mandates and programs collecting spatial data and information in the South Florida ecosystem should be accomplished.

Information Prerequisites	The request to participate in the program exchange process must have a concise and articulate explanation of what is wanted, why a program should participate, and the expected and intended use of the information. The appropriate person to receive the program information survey should be identified. Session participants concluded that these were easy recommendations to address.
Program Commitments	Individual program contacts should be assigned as the responsible person to provide program information. Programs should simply commit the necessary resources to accomplish the effort. It was believed that there was no real burden on a program to participate. Agency policy should mandate participation by programs.
Incentives	It was felt that once the information became public and was perceived as important and useful that peer pressure to be identified with the South Florida restoration efforts would promote participation. This information would provide easy access and awareness to other programs. The information should make planning and budgeting more efficient between agencies. Developing a useful set of information products will encourage participation. The participants agreed that voluntary incentives will not elicit full participation. It was felt that participation will have to be addressed through agency policy.

Institutions	The primary facilitators to achieve full participation were recommended to include the South Florida Ecosystem Restoration Federal Task Force (Federal Task Force), the Governor's Commission on a Sustainable South Florida (Governor's Commission), and appropriate regional planning councils. County session participants felt that counties should be approached individually, but no clear resolution on guaranteeing success was articulated. It was suggested that the League of Cities may be a facilitating body at the local level.
Interim, Short-term, and Long-term Needs	For the short-term it was recommended that additional information surveys were needed prior to producing the proceedings. The effort should target nonparticipating or missing agencies. It was observed that the information surveys in their current form allow a broad range for what defines a program. In some cases a program was presented as a single "project" and in others it was presented as a broad suite of "projects." It was recommended that an interim effort be made to develop a clear articulation of what criteria should define a program so that the expected update process will eventually put all programs at a comparable level. For the long-term it was recommended that a computerized database format for the information surveys be developed and provided to responders.
Technologies	Ultimately, the information needs to appear in an electronic database.
Funding	This should not be a big issue for participation. Resource needs are minimal and only require the time to complete the information surveys.

Issue 2: How do we make program information available?

For this issue the session members focused on making the resultant program information available to the widest and most appropriate body of users.

Information Prerequisites	Availability of the information needs to be announced through a wide range of media. Completed information surveys should be gathered for as many potential participants as possible. The notice of availability needs to be placed in the multitude of electronic bulletin boards. A focus on South Florida partners should be the first priority.
Program Commitments	Support at the program level will be required. Contact person(s) must be ready to provide additional program information as interested parties learn about their programs. Data distribution will ultimately be a major issue that individual programs or agencies must be prepared to handle.

Program Information Pilot Project - Available on the Internet

A result of the Workshop was the development of a pilot project to make the program information available on the Internet The EPA Office of Information Resources Management, the FDEP Florida Marine Research Institute, and the NOAA Strategic Environmental Assessments Division collaborated to make the program information surveys available on the EPA Gulf of Mexico Program's Gulf Information Network (GIN)

Instructions for Access and Use

- Access should be through a World Wide Web browser such as NCSA Mosaic© Optimum use of Mosaic is achieved through a high-speed connection If you are unsure about this first level of access, check with your local network administrator to make sure you will have a successful connection
- In Mosaic, submit the URL to http //www epa gov
- Scroll down to the EPA home page and double-click on the Gulf of Mexico Program
- You will now be in the GIN home page Scroll down to State Partners and click on the State of Florida icon
- Find the South Florida Restoration Electronic Library and click.
- You will now be in the Workshop program information surveys and can click on an area on the South Florida map to list the table of contents for the pertinent programs identified for that area Click on the table of contents to read a specific information survey

Remember that this is a pilot effort The programs currently identified do not represent the breadth of programs collecting spatial data in the region Additional programs, especially academic and local, may be added at a later date

The EPA Office of Information Resources Management has developed the World Wide Web implementation of this pilot effort The aforementioned collaborators are in the process of developing a database that is based on the assessment of the information surveys and the classification by data categories (e g , water quality) It is expected that query capabilities about programs in South Florida will be available in the near future

Incentives	Effective information exchange brings people together for cost sharing, promotes efficiency in data collection, and prevents redundancy It would be expected that a synergistic effect of communication between programs will increase beyond the mere exchange of information about individual efforts Partnerships will be built and enhanced
Institutions	The agency contact responsible for the program plays a key role in facilitating this process The Federal Task Force and the Governor's Commission should take a proactive role in ensuring the success of this effort Ultimately, they should promote the participation of local, academic, and nonprofit organizations Connectivity and participation by top managers is critical for the success of this process
Interim, Short-term, and Long-term Needs	In the short-term, the EPA, as part of the South Florida partnership, will commit to assist in the development of a pilot electronic version of the information surveys There is a long-term need to develop a lead agency or consortium that will facilitate this effort

Technologies	It is important that a variety of technologies are used to make program information available. Suggestions include hard copy, floppy disc, CD-ROM, Internet, and electronic bulletin boards. Journals and other publications should be used as well.
Funding	In the short-term, EPA will help facilitate Internet implementation. FDEP and NOAA will continue to pursue and encourage participation by additional agencies.

Issue 3: How do we make this an evolving process that maintains and updates program information and distribution?

A process to allow the addition of new programs must be developed. This will require a substantial network of organizations and internal organizational networks to ensure that new programs are identified and listed.

Information Prerequisites	The current information surveys should be date-stamped so that updating can be identified.
Program Commitments	Program contacts must commit to a regular schedule of updating. Generally, this is not successful and is often the source of failure of this type of exercise.
Incentives	See Issues 1 and 2.
Institutions	See Issues 1 and 2.
Interim, Short-term, and Long-term Needs	A long-term commitment will be required to maintain and update this information base. A lead agency or consortium of agencies will need to be established.
Technologies	A variety of methods to update information must be used. Initially, mailed survey forms and word-processing files can be used, but participants should move toward the Internet as an update tool. It will be important to have a quality-control process for updating the information surveys
Funding	A short-term pilot EPA/FDEP/NOAA effort to electronically implement the program information was developed during the workshop. This effort will minimally address updating and maintenance. Long-term electronic information exchange is a major issue and needs to be addressed at the agency level in conjunction with the Federal Task Force and the Governor's Commission.

Day 2 Spatial Data and Information Access/Exchange

Failure to adequately address spatial information access and exchange will substantially impede the ability to solve the problems facing South Florida. Currently, insufficient cataloging and maintenance of data important to the region is resulting in countless duplication of efforts to identify and retrieve data. It is paramount that current and future data collections follow a protocol that facilitates data access and exchange. Effective information management, analyses, and utilization must form the foundation on which to build an ecosystem approach to South Florida ecosystem management. New tools are available that, if properly implemented, could facilitate integrated management. Based on present trends in information technology, it appears that computer networking and Geographic Information System (GIS) technologies will become the foundation for maintaining, exchanging, and processing resource management information. Networking will bring information from a variety of sources, and GIS will offer a new and powerful tool that will integrate and analyze disparate resource data and display the information in a form that is easily interpreted by managers. Careful attention must be given to the implementation of these tools, or ecosystem management in South Florida will not be successful.

Topic 1: Identify priority data-gathering needs to support management of the South Florida ecosystem.

Issues

Nondigital historical data provide an important source of information. Although outside the scope of the current inventory and workshop, it should not be ignored. Conversion of this data is problematic and should be addressed in the overall scope of South Florida data exchange.

Positional accuracy reflects the data quality. Better accuracy leads to more confidence in the data. Data should be as accurate as possible within financial constraints. Standard positional accuracy enables different data to be used together (comparability). However, different levels of accuracy are needed for different uses (i.e., local, state, and national projects have different accuracy needs).

Interagency coordination of data collection activities is needed to prevent redundant data collection and to provide multiple-purpose data.

Recommendations

Create a data inventory and directory. Conduct a continuing and more detailed survey of available data and information. The workshop survey is a good start. The inventory results should be cataloged in a directory in a fashion similar to a library card catalog.

Establish a central repository for the directory. A decision needs to be made about whether this should be housed locally or through a Federal coordinating group such as the FGDC.

Leadership is needed to establish a group to coordinate generation of the inventory. The inventory needs to be electronic so that data collectors can enter the information.

An analysis of the level of information accuracy (e.g., location of a sample station within 1 ft. or 50 ft., elevations at 6 in. or 5 ft.) is needed for ecosystem management in South Florida. This should include a cost-benefit analysis.

Through the existing framework of the Federal Task Force and the Governor's Commission, funding opportunities should be explored (e.g., grants through the EPA).

Topic 2: Evaluate and implement the ongoing development of standards for data accuracy and quality assurance. Recommend additional needs specific to the South Florida ecosystem.

Issues

The Federal metadata standards are in place, but completing the task will be difficult. The standards are lengthy, complicated, and have not been reviewed and adopted by state and local governments.

Due to the size and complexity of GIS data sets, errors are difficult to eliminate. Quality assurance/quality control (QA/QC) procedures could be enhanced through peer review and user feedback.

No datum standards have been established. Data in different datums cannot be used together. Users must either convert data, or a standard must be agreed upon. There was some debate about whether a stable conversion exists. Many organizations are mandated to use a specific datum, so standardization may be impossible.

Data collected at different scales cannot be integrated well.

Recommendations

The group strongly agreed that metadata is needed. The FGDC should work within the framework of the Federal Task Force and the Governor's Commission to disseminate FGDC standards to state and local agencies for review and comment as soon as possible. This should include on-site presentations to regional and local participants. It is important that all organizations generating spatial information adopt the FGDC metadata standards.

As data exchange becomes a practice it is critical that a mechanism be established to provide a feedback loop for users to report errors to data sources. The metadata should include a contact person. Further discussion is needed to address procedures for distributing data updates.

Topic 3: Identify public access and data-sharing needs in order to make recommendations to improve dissemination of data. Consider security, coordination mechanisms, and formatting to meet wide-ranging user needs.

Within the framework of the current organizational structures, South Florida consensus groups should address common data themes. These groups should address data sources, technical specifications, collection standards, stewardship, and quality assurance procedures for specific data sets.

Issues

Resource allocation is an impediment to public access.

Data is distributed in various formats. Although the Federal data transfer standard has been established, software vendors do not yet provide a conversion utility. Large vendors are working on this, but small software vendors may not be.

There is not a consistent public access policy among the various levels of government. This hinders consistency in cost reimbursement.

Data sets are at different levels of readiness. Sometimes there is reluctance to release data. There is no standard or policy guiding when to release data.

Some data is confidential/sensitive. With open record laws, how will this be handled?

Recommendations

A standard exchange format is desirable. Poll South Florida participants to find out if their software vendors are providing a conversion utility for the Federal data transfer standard.

Data distribution costs should be minimized up front. Suggestions include: 1) publishing data on CD-ROM, 2) providing data on-line for retrieval, and 3) increasing access to the Internet.

Metadata should provide provisional/disclaimer statements and intended use documentation. This documentation should be included with the data.

Agencies must be able to ensure that the confidentiality of data is retained when information is shared. Further discussion is needed on how to share proprietary information in case of an emergency (e.g., Hurricane Andrew).

Topic 4: Evaluate interagency organizational needs in terms of GIS access requirements, training needs, and support structure. Make recommendations specific to interagency efforts needed for the use of GIS tools for the South Florida ecosystem.

Issues

Training is the major issue associated with this topic. Different levels of training are needed for various users. Training should include opportunities for technical exchange. Topics include general GIS concepts, use of software, and standards. Managers must be brought up to speed on the capabilities of GIS.

Recommendations

Pool training efforts to provide interagency joint funding opportunities.

Establish a user group. Rotate hosting responsibilities to minimize impacts to workloads. Explore training opportunities in the universities to minimize costs. Minimize training needs by developing easy-to-use interfaces.

Provide multi-level training, for example:

ArcView© for data users;
ARC/INFO© for GIS technical level; and
GIS concepts for upper management.

Topic 5: Identify and evaluate information and data summary, synthesis, and product needs for technical analyses and integrated, multi-agency decision-making for the South Florida ecosystem.

Issues

This topic involves the synthesis of raw data in order to present information in a meaningful manner. This will require training on what data is in existence and how it is appropriately used. Appropriate action will require knowledge of which questions need to be asked, which questions can be answered, and how to find the answers.

Recommendations

An effective data and information management program should be implemented to collect, translate, and integrate technical information for South Florida ecosystem managers, technical managers, and the public. Develop a mechanism for disseminating information products as well as data. This is an important action.

Develop customized information delivery systems such as ARCView and COMPAS. These are software and data systems packaged to provide information for various users such as managers, the public, or technical personnel. Include intended use clauses in metadata and provide training on what information and software are available and how to use them.

Day 2: Program and Spatial Data Integration and Ecosystem Management

This work session focused on the integration of programs and spatial data in the South Florida ecosystem. The primary objective was to identify methods for integrating programs and spatial data that address the South Florida ecosystem management objectives. A secondary objective was to develop an outline for developing a pilot or series of pilots that link programs and spatial data to ecosystem management objectives.

The session consisted of five topical areas. The first topic focused on identifying management impediments and issues for facilitating multiple agency integration of programs and spatial data. The second considered whether a multi-agency pilot or set of pilot projects should be undertaken that link ecosystem management objectives to programs and spatial data to address administrative, programmatic, and technical requirements. The third identified the prerequisites and requirements necessary in implementing a pilot or series of pilots. The fourth focused on determining whether a multi-agency team should be formed to explore the development of pilot project(s). Finally, the fifth topic attempted to identify which management objectives might be addressed within the pilot(s).

Topic 1. What are the management impediments/issues to facilitating multiple agency integration of programs and spatial data?

There are a number of impediments to the appropriate integration of programs and spatial data. Chief among them is the lack of a common set of goals and objectives for South Florida Ecosystem restoration that would lead to a shared vision and mutual commitment among agencies. Differing agency mandates and the need to address one's own mandates first are thought to be impediments to cooperative work with others, particularly when personnel and funding are tight.

Top-to-bottom commitment to funding, personnel, and equipment for interagency coordination is wanting. Agency commitments have not been translated from the highest levels of bureaucracy through supervisory levels to individuals working at the project level. Shortfalls in cooperative working relationships have resulted in duplication of effort and a narrowed vision of data usefulness.

Even when agencies do want to share data, the group determined that data compatibility is a major impediment to program integration. The level of detail and geographic coverage required varies by program. Levels of expertise, quality assurance, and quality control vary between agencies.

Recommendations

Interagency Commitment — A Shared Vision. Coordination and heightened interaction of programs between agencies need to be given higher priority. A common set of goals and objectives agreed to by all agencies involved in the South Florida Ecosystem restoration must be developed and promulgated as a shared vision. At the project level, this shared vision must be considered when developing individual project objectives. Project leaders are encouraged to consider not only the needs of their agencies, but also the objectives and priorities of the South Florida Ecosystem restoration effort. In reviewing these priorities the project leaders should consider how project data could be used by other agencies. Contact with these other agencies at an early stage of planning could benefit all groups and lead to a broader scale of understanding for meeting overall goals. Interagency goals and objectives should be outlined prior to undertaking joint activities. This may be accomplished, for example, in memoranda of understanding developed prior to project initiation. The purpose would be to identify, by individual project components, the project activities, agency responsibilities, and the timing of project components.

Agency Commitment — Resources. A commitment must be clearly established by each agency. Budgeting and personnel issues must be resolved internally before initiating joint activities with other agencies. For example, personnel and associated tools (computers, research equipment, boats, etc.) must be assigned to cooperating interagency projects. Certain agency programs in support of interagency efforts may require augmentation. Managers should consider providing dedicated personnel, particularly for data management,

and explore possibilities for leveraging personnel, funding, and equipment between cooperating agencies. Cooperation among agencies should lead to pooled resources and more effective responses to the mandates of the agencies involved. Commitments must be clear and such efforts must be established as a priority within each participating agency.

Overview Organizations. Identifying areas of potential coordination and resolving issues of data compatibility, scale, and QA/QC can be greatly expedited by groups tasked with oversight of the South Florida landscape restoration. The Governor's Commission and the Federal Task Force should deal with all players at the highest levels and set priorities for the direction of the proposed South Florida Spatial Data Coordination and Integration Group working at the technical level with individual projects.

Governor's Commission on Sustainable Development. The group recommended that the Governor's Commission be asked to identify and prioritize, jointly with the Federal Task Force, the environmental issues of concern to South Florida and the management goals and objectives related to these issues. Additionally, the Governor's Commission should provide the interagency commitment and seek the necessary commitments from the individual agencies represented.

South Florida Ecosystem Restoration Task Force. The Federal Task Force should be asked to identify and prioritize, jointly with the Commission, the environmental issues of concern to South Florida and the management goals and objectives related to these issues. Additionally, the Federal Task Force should provide the interagency commitment and seek the necessary commitments from the individual agencies represented.

Federal Geographic Data Committee. The FGDC should be asked to strongly encourage all agencies using spatial data in South Florida ecosystem restoration to commit to program coordination and sharing of digital data and technologies. The FGDC should facilitate the development of the National Spatial Data Infrastructure (NSDI) in South Florida by working with state, regional, county, and local governments as well as the Federal agencies involved. The South Florida effort should be used to test and implement regional application of the NSDI, including development of a regional clearinghouse and the use of metadata and spatial data transfer standards.

Proposed South Florida Spatial Data Coordination and Integration Group. The workshop recommended that an integration and spatial data group be established to facilitate implementation of program coordination and spatial data sharing. One of the first tasks should be to oversee the development of pilot project(s) as discussed below. The group should interact with all relevant agencies at the technical level to ensure that effective coordination and integration occur. The precise organization and placement of the group within the South Florida infrastructure needs to be determined jointly by the Governor's Commission and the Federal Task Force.

Topic 2. Should a multi-agency pilot or set of pilot projects be undertaken that link ecosystem management objectives to programs and spatial data in order to address administrative, programmatic, and technical requirements?

The group endorsed the idea that a pilot or series of pilots should be undertaken. Pilots should emphasize near-term, management-oriented, tangible results using spatial data. Pilot projects would represent an early application of an integrated, interagency approach to the solution of issues of concern to South Florida ecosystem restoration. Pilot studies will test the efficacy of cooperative support at all levels of government and bring the strengths of each agency to bear on a common set of objectives. A pilot or series of pilots will test protocols for interagency cooperation and data sharing, as well as test the applicability of one agency's data to another's needs. Pilots are desirable to move agencies toward a shared vision and to forward the restoration of the South Florida ecosystem. Testing cooperation together with data transfer and integration also facilitates development of the NSDI.

Recommendations

Early Pilots. Two early pilots exist. They are: 1) the National Biological Service (NBS) Florida Gap project and the NOAA Coastal Change Analysis Program, planned as a result of this workshop, and 2) the Florida Bay pilot now under way.

The NBS/NOAA project is a joint effort involving land cover mapping and coastal habitat change, and is dependent on cooperation and the use of spatial data from all levels of government. Cooperation among many levels of government, division of labor, and the sharing of spatial data to achieve multiple objectives are present in these pilots. These pilots should be endorsed.

Topic 3. In developing a pilot project, what prerequisites or requirements and criteria should be used as a guide?

The particular environmental problem(s) or issue(s) to be addressed must be defined along with the management objectives and goals to be achieved. Pilots should meet the goals and objectives of the Governor's Commission and the Federal Task Force. The data needs and agencies to be involved, including Federal, State, regional, county and local, must be determined prior to the pilot. Agency commitments must be obtained. FGDC standards must be used.

Topic 4. Should a multi-agency team be formed to explore development of a pilot or pilots?

Identifying areas of potential coordination and resolving issues of data compatibility, scale, and QA/QC can be greatly expedited by the formation of a group tasked with facilitating the development of pilot projects for South Florida landscape restoration.

Recommendations

A multi-agency team, the Spatial Data Coordination and Integration Group (see Topic 1), should be formed, consisting of both policy-makers and technical staff. The team will determine the environmental focus as well as the data needs, agencies to be involved, and potential for success. As an aid to determining which agencies potentially should be involved, the team should make use of these proceedings, which provide programmatic information surveys and several synthesized tables that allow quick identification of topical areas by program. They also should seek agency commitments and facilitate the assembly of the organized set of individuals to undertake the pilot or pilots. The development of project objectives, priorities, and commitments should be established through a consensus-building process. Issues of working within the constraints of the Federal Advisory Committee Act (FACA) should be explored. FACA restricts the Federal Task Force's ability to consult with State or private groups, or to meet and negotiate with their representatives.

Topic 5. What management objectives might be suggested for pilot consideration?

Pilot or pilots should address known environmental issues and management goals for the restoration of the South Florida ecosystem. The group identified three pilot types that relate to ecosystem restoration management objectives. These include: 1) a Florida Bay pilot; 2) land cover/land use projects; and 3) hydrologic and water quality modelling (e.g., linking the South Florida Water Management District Model to the Florida Bay model).

Spatial Information Pilot Project: Steps Required for Implementation

The group identified a number of steps that must occur for the development of a pilot project:

1. Define environmental issues/problems and management goals/strategies
2. Define data needs
3. Define what already is being done (conduct inventory)
4. Define gaps and conflicting data
5 Identify programs to integrate
6 Define the lead roles in project implementation
7 Define mutual interests
8. Obtain commitments from participating agencies
9. Develop a draft work plan
    - identify project activities
    - identify responsibilities
    - establish schedule
    - determine funding
10. Obtain commitments through a memorandum of understanding
11. Implement project.

Proposed Actions for the Development, Distribution, and Use of Spatial Information in South Florida

This section highlights several actions that would improve the development, use, and distribution of spatial information. These recommendations were developed as a result of the consensus-building approach used at the workshop. They are organized into three groups: 1) completing the inventory begun through this workshop and establishing an update mechanism; 2) integrating spatial programs where appropriate; and 3) making spatial information available for ecosystem restoration.

Action Group 1: Complete Inventory of Spatial Programs and Establish an Update Process

Completion of Interagency Inventory. A completed inventory of all programs and activities collecting spatial information important to South Florida restoration and sustainability, current or planned, must be accomplished. This workshop identified only a subset of all interagency programs collecting or organizing spatial information in South Florida. *The Federal Task Force should work with the workshop organizers to instruct members to participate in the effort. The Governor's Commission should also ask its representative members to assist in completing the inventory by working with the workshop organizers to identify and solicit full State, regional, and local participation.*

Inventory Academic Programs. The workshop did not focus on academic programs. As a result, considerable information about private programs has not been assembled. *The Governor's Commission should request that the new Florida Atlantic University, Center for Environmental Studies assist the workshop organizers in an inventory of all current and planned academic programs and activities collecting spatial information important to South Florida restoration and sustainability.*

Program Communication. The maintenance, updating, and inclusion of new programs and activities must be facilitated if the communication of ongoing activities in South Florida is to be successful in the long-term. This will require an infrastructure and possibly a designated lead agency. *The Federal Task Force should instruct its Science Subgroup and Information and Public Outreach Committee, and the Governor's Commission should instruct its Ecosystem Planning and Management Subcommittee and Science Research Priorities Advisory Committee, to develop and recommend an infrastructure for the long-term communication effort.*

Action Group 2: Coordination and Integration of Spatial Programs

Develop Priority Spatial Information Needs. Coordination and heightened interaction of programs between agencies needs to be given higher priority. A common set of goals and objectives agreed to by all agencies involved in the South Florida Ecosystem Restoration must be developed and promulgated as a shared vision for improved coordination. *The Governor's Commission and the Federal Task Force should instruct participants to begin an integration and coordination process for known priority needs of spatial information.*

Implement Pilot Project in Taylor Slough-Florida Bay. *An ad-hoc group under the direction of the Governor's Commission and the Federal Task Force should immediately develop a pilot project for the Taylor Slough-Florida Bay region to demonstrate the efficacy of building and synthesizing spatial information to address management issues, and make such information available via the Internet and CD-ROM.* Such a pilot would represent an early application of an integrated, interagency approach to the solution of issues of concern to South Florida ecosystem restoration. The pilot will emphasize management-oriented goals and objectives, and should be capable of producing tangible results in the near-term. Federal, State, regional, county and local agencies will be involved to the extent that they have relevant data ready for transfer and integration in the near-term.

Integrate Spatial Data Programs. *The Governor's Commission and Federal Task Force should create and empower a work group, the Spatial Data Coordination and Integration Group, to be responsible for coordinating and integrating spatial data.* Working at the technical level with individual projects, the group would facilitate the implementation of program coordination and spatial data sharing. The group should interact with all relevant agencies at the technical level to ensure that effective integration occurs. The group will determine the environmental focus as well as the data needs, agencies to be involved, and potential for success. It also should seek agency commitments and facilitate the assembly of the team to undertake projects involving spatial data. The development of project objectives, priorities, and commitments should be undertaken via a consensus-building process. Issues of working within the constraints of FACA should be explored. The precise organization and placement of the group within the South Florida infrastructure needs to be determined jointly by the Governor's Commission and the Federal Task Force.

Action Group 3: Spatial Information Access

FGDC Promotion of Program Integration. *The FGDC should be asked to strongly encourage all agencies using spatial data in South Florida ecosystem restoration to commit to program coordination and sharing of digital data and technologies.* The FGDC should facilitate the development of the National Spatial Data Infrastructure in South Florida by working with State, regional, county and local governments as well as the Federal agencies involved. The South Florida effort should be used to test and implement regional application of the National Spatial Data Infrastructure, including the development of a regional clearinghouse and the use of metadata and data exchange standards.

Mandate/Promote Use of FGDC Standards. Improving information access was identified as a priority among the workshop participants. The need to accelerate the implementation of FGDC standards among Federal agencies and to promote their use among state, regional, county, and local agencies is fundamental to achieving better access to spatial information. The metadata standards establish a documentation procedure that assists potential users in determining their interest in a particular data set (i.e., "Do I want to access this data set?"). The FGDC also promulgates Spatial Data Transfer Standards that, when used, enable the transfer of data sets from one computer to another; frequently, data sets cannot be transferred between computers because of the different languages used.

Workshop participants recommended that the Federal Task Force mandate the use of FGDC metadata and spatial data transfer standards for each of its agencies in South Florida. Although Federal agencies are required to meet these standards, it was determined that an additional mandate would provide greater incentive among Federal agencies to hasten the use of FGDC standards.

Participants also recommended that the use of FGDC standards should be encouraged at the State, regional, county and local levels by the Governor's Commission. Although these standards are not a requirement, their use would complement efforts at the Federal level and improve information access and transfer. *A formal recommendation by the Governor's Commission of the use of metadata and spatial data transfer standards by state, regional, county, and local agencies operating in South Florida is required.*

Make Information Available via the Internet. *The need for a focal point or clearinghouse of information on spatial programs was highlighted by the work groups at the workshop.* Participants recognized that the information gathered through the information surveys was useful, but that more detailed information needs to be gathered for many of the programs. As a result, the workshop information surveys have been loaded onto the Internet. They are available on the EPA Gulf of Mexico Program's Gulf Information Network (GIN). The directory can be accessed using a World Wide Web browser and submitting the URL: http://www.epa.gov. The GIN home page will be found under the Gulf of Mexico Program.

In addition, plans are under way to implement a joint NOAA/FDEP initiative to gather detailed metadata-type information on selected spatial programs that address management needs for ecosystem restoration in South Florida. This survey will go beyond what was gathered from the workshop information surveys. For example, information will be included about the types of data, geographic coverage, period of record, use of data, etc.

The project will target a subset of the priority information needs identified by the Governor's Commission and the Federal Task Force. The project's geographic focus will be limited to one of the ecosystem subregions. This information will be stored in a relational-type database and made available via the Internet. Users will be able to query the database and produce tabular, and to a limited degree, graphic results.

References

Interagency Working Group. 1994. *Draft 1994 Interagency Working Group Report: Ecosystem Restoration and Maintenance.* Miami, FL: Interagency Working Group, South Florida Ecosystem Restoration Task Force. 128 pp. + appendices.

Science Subgroup. 1994. *South Florida Ecosystem Restoration: Scientific Information Needs (Draft Summary).* Miami, FL: Science Subgroup, South Florida Ecosystem Restoration Task Force. 75 pp.

Appendix A: Definitions of Data Categories and Data Characteristics

Abiotic Environments

Air Quality (AQY). This data category includes those programs that collect or synthesize information about the status of, or trends in, air quality in the study area.

Beaches/Shores (B/S). This data category includes programs that collect, organize, or synthesize information related to beaches or shores (e.g., shoreline erosion, historic shorelines, beach replenishment).

Climatology/Meteorology (C/M). This category includes projects that collect or synthesize climatological or meteorological data. Projects in this category include air temperatures, precipitation, wind speed, and wind direction. Air quality data are excluded from this category.

Geologic (GEO). Projects that include geologic information about South Florida are found in this data category.

Hydrography (HYG). This data category includes programs with information about the physical characteristics of oceanic and estuarine waters. This category encompasses information on tides, currents, circulation and water temperature.

Seafloor Characteristics (SEC). This data category includes programs with information on specific seafloor features.

Soils/Substrates (S/S). This data category includes programs that collect or synthesize information related to soils and/or marine and estuarine substrates. For example, information in a Soil Conservation Service database would be listed under this category. Likewise, information about seafloor substrates collected by the USGS would be listed in this category.

Topography/Bathymetry (T/B). This category contains information about the configuration of the land surface or ocean bottom.

Biotic Environments

Submerged Habitat (SUB). This data category includes information on submerged aquatic habitat for fish, invertebrates, and mammals. Examples of submerged habitat include seagrasses, coral reefs, hard bottom, soft bottom, etc.

Endangered/Threatened Species (E/T). This data category includes any programs that collect or organize information about endangered or threatened species.

Exotic Species (EX). This data category includes information about nonnative flora or fauna.

Fish (FIS). Programs that include information on freshwater or saltwater fish are included in this data category.

Invertebrates (INV). Programs that include information on freshwater or saltwater invertebrates are included in this data category.

Land cover (LC). This data category includes databases with detailed information about vegetative land-cover types in South Florida.

Phytoplankton/Zooplankton (PHY). This data category includes programs with information about plant or animal plankton.

Upland Habitat (UPH). This data category includes information about the type, location, and extent of upland habitat types. This category differs from land cover because its focus is on habitat use. Examples of habitat types in this data category include pinelands, scrublands/shrublands, oak forests, etc.

Wetland Habitat (WET). This data category encompasses information about the type, location, and extent of wetland habitat types. This category differs from land cover because its focus is on habitat use. Examples of habitat types in this data category include wetlands classified as salt marsh, fresh marsh, forested and scrub/shrub, tidal flat or open water.

Wildlife (WIL). This data category captures all programs with information on South Florida wildlife (birds are excluded).

Birds (BIR). Programs that contain information on the various types of birds in South Florida are listed in this category. This category is separate from the wildlife category because of the diversity of birds (coastal, raptors, seabirds, shorebirds, wading, waterfowl, etc.) in South Florida.

Human Activities and Uses/Jurisdictions

Agriculture (AGR). This data category includes programs that contain information about South Florida agriculture. Information might include research data, agricultural production, and the level of pesticide or fertilizer use.

Contaminated Sites (CON). This data category is comprised of programs with information about hazardous waste sites. Information about landfills, incinerators, and other municipal or industrial waste facilities may also be listed.

Cultural Sites (CS). Sites that are protected or receive some form of management status due to their unique cultural characteristics are listed in this data category. Examples include historic buildings, monuments, shipwrecks, archaeological sites, etc.

Oil/Hazardous Materials Spills/Vessel Groundings (HAZ). This category includes all programs containing information related to oil and/or hazardous materials spills (e.g., the location and time of spill, the type of material, etc.). Also included are programs with information on vessel groundings (e.g., ship size, type of damage, extent of damage).

Industry (IND). This category lists programs with information on industrial activity (e.g., waste disposal or discharge at site, type and extent of industrial activity, location of industrial facilities, etc.).

Land Use (LU). This category includes programs that have some type of land-use data for South Florida.

Population/Housing (P/H). This category includes programs with information on population and housing (e.g., historic population data, population estimates or projections).

Recreation (REC). This category includes spatial information about recreational programs in South Florida.

Transportation (TRN). This data category includes programs with information on the spatial location of roads, highways, rail lines, airports and other transportation facilities or conveyances.

Political/Jurisdictional Boundaries (P/JB). This data category includes programs with political or jurisdictional boundaries within their databases.

Protected Areas (P/P/R). This category includes protected areas such as parks, preserves and refuges.

Water Resources

Hydrological Information (HYL). This data category includes hydrologic information (e.g., stream flow, water quantity, watershed boundaries, locations of water bodies). This category overlaps with many of the data categories within this group.

Runoff (nonpoint sources) (NPS). This data category includes spatial data about runoff (urban or nonurban) in the South Florida restoration area.

Wastewater Discharge (point sources) (WWD). This data category includes spatial information about direct discharges from industrial or municipal facilities.

Water Control Structures (WCS). This data category includes programs that contain data about water control structures (e.g., canals, levees, stormwater control facilities) located in the study area.

Water Quality (WQL). This data category includes programs that contain information about the status of, or trends in, water quality.

Water Use (WUS). This data category includes municipal, agricultural, industrial and other water uses.

Data Characteristics

Contaminants. Program includes information that describes or characterizes specific contaminants; focus not limited to water quality.

Abundance. Program includes information that assesses or quantifies abundance of biological resources.

Distribution. Program includes information that characterizes the geographic extent of phenomena.

Status and Trends. Program includes temporal information; time-series data.

Freshwater-surface. The focus of the programmatic data is on surficial freshwater.

Freshwater-ground. The focus of the programmatic data is on freshwater beneath the earth's surface (e.g., fresh-water aquifers).

Saltwater-surface. The focus of the programmatic data is on surficial saltwater.

Saltwater-ground. The focus of the programmatic data is on saltwater beneath the earth's surface.

Appendix B: Summary of Program Information Surveys

Agency ID	Program	Data Category	Geographic Coverage: 1 - Kissimee River Basin	2 - Lake Okeechobee Waterway	3 - Loxahatchee River Region	4 - Everglades Agricultural Area	5 - Water Conservation Areas	6 - Big Cypress Watershed	7 - Everglades National Park	8 - C111 Basin/Card S./Bisc. Bay/FL Keys	9 - Lower East Coast Urban Area	Timing: Ongoing	Planned	Data Storage: Hard Copy	Digital	Data Availability: Being Distributed	Planned for Distribution	Not Available	Data is Clean	Data Need Some Work	Data Need Lots of Work	Unknown
FEDERAL																						
Army Corps of Engineers																						
ACOE-1	Water Management Decision Support System (Jacksonville District)	A(CM), W(HYL)	●	●	●	●	●	●	●	●	●	●			●	●						
ACOE-2	Central and S. Florida Project Restudy (A) (Jacksonville District)	H(P/H), W(WCS)			●	●	●	●			●	●		●	●	●						
ACOE-3	Central and S. Florida Project Restudy (B) (Jacksonville District)	B(WET, LC)		●		●	●		●			●		●	●	●						
ACOE-4	Survey Branch/Engineering Division (Jacksonville District)	A(HYG, T/B)	●	●	●	●	●	●	●	●	●	●		●	●	●						
ACOE-5	Coast of Florida Erosion & Storm Effects Study (Jacksonville District)	A(B/S, GEO, HYG, SEC, T/B)									●	●			●		●			●		
ACOE-6	Regulatory Analysis & Management System	B(WET)	●	●	●	●	●	●	●	●	●	●	●	●	●						●	
Environmental Protection Agency																						
EPA-1	Everglades Mercury Study (REMAP)	A(S/S), B(FIS), W(HYL, WQL)				●	●	●	●	●	●	●		●	●						●	
EPA-2	Environmental Monitoring and Assessment Program (EMAP) - Estuaries	A(S/S, HYG), B(FIS, INV, WET, PHY), W(WQL)		●	●			●	●	●	●		●	●	●		●		●			
EPA-3	Florida Keys Water Quality Protection Program (EPA/FDEP)	B(SUB), W(WQL)								●			●	●	●		●					
EPA-4 thru EPA-9	Wetlands Advance Identification Projects	B(WET)		●	●			●	●	●	●	●	●	●	●	●						
EPA-10	EnviroFacts Project	H(CON,IND)	●	●	●	●	●	●	●	●	●	●			●		●					
EPA-11	Spatial Data Clearinghouse	H(LU, P/H), W(WWD)	●	●	●	●	●	●	●	●	●	●			●	●						
Fish and Wildlife Service																						
FWS-1	National Wetlands Inventory (A) - Wetland Status and Trends	B(WET)	●	●	●	●	●	●	●	●	●	●				●			●			
FWS-2	National Wetlands Inventory (B)	B(WET)	●	●	●	●	●	●	●	●	●	●		●	●	●			●			
FWS-3	Ecological Services - Vero Beach Field Office	B(SUB, E/T, WIL, WET)	●	●	●	●	●	●	●	●	●	●			●						●	
National Biological Service																						
NBS-1	Florida Biological Diversity Project	B(LC, WET, WIL, UPH), H(P/P/R)	●	●	●	●	●	●	●	●	●	●			●		●	●				
NBS-2	Long-term Fire Ecology (Big Cypress National Preserve)	B(LC, UPH)						●				●		●	●			●		●		
National Oceanic and Atmospheric Administration																						
NOAA-1 NOAA-2	Coastal Change Analysis Program (C-CAP)	B(SUB, LC, UPH, WET)	●	●	●	●	●	●	●	●	●	●	●	●	●		●					
NOAA-3	South Florida Ecosystem Restoration Project Support A - Monitoring, Gauging, and Sampling Sites (NOS/FDEC)	A(C/M, HYG), W(HYL, WQL)	●	●	●	●	●	●	●				●		●		●					●
NOAA-4	South Florida Ecosystem Restoration Project Support B - Water Diversions/Flows (NOS/SFWMD/FDEP)	W (WCS)	●	●	●	●	●	●	●				●		●		●					●

Agency ID	Other Data Being Used in Program	Characteristics: Contaminants	Abundance	Distribution	Status and Trends	Freshwater-surface	Freshwater-ground	Saltwater-surface	Saltwater-ground	Information Content/Summary	Contact
FEDERAL											
Army Corps of Engineers											
ACOE-1				●		●				Water surface elevation, stream stages, reservoir elevations, & cumulative precipitation	K. Jones (904) 232-1786
ACOE-2	Bureau of the Census TIGER & STF1B files; USGS DLG transportation & hydrography files; Florida land use; PLSS of SFWMD			●						Housing unit density; Central & Southern Florida project features; land use; census blocks; transportation; network; hydrography	R. Sutton (904) 232-2743
ACOE-3	Davis '43 vegetation map; Davis '94 vegetation map			●						Historic wetland communities of Southern Florida.	L. Manners (904) 232-3923
ACOE-4				●						Historical and current hydrographic & topographic ACOE survey data	H. Rimmer (904) 232-1606
ACOE-5	Outputs from various numerical modelling efforts have been used including: Wave Information Study, GENESIS, SBEACH, & Storm-Damage			●						Database is structured around four major components: coastal processes/engineering; geotechnical; environmental information; & socioeconomic data	J. Holt (904) 232-1695
ACOE-6				●						Permitted wetland impacts & reauthorized wetland impacts (acreage); type & quantity of wetland mitigation; enforcement actions & restorations; project locations	N. Show (904) 232-1673
Environmental Protection Agency											
EPA-1	Florida Atmospheric Monitoring study; NWI; process studies	●				●		●		Water, sediment, and fish sampled for ultratrace level total Hg and CH3Hg; temperature, DO, turbidity, conductivity, pH, TP, DOC, SO, etc.	J. Stober (706) 546-2207
EPA-2	Thematic mapper data for South Florida, NOAA Status & Trends Program	●	●	●		●		●		Salinity, temp., pH, DO, light penetration, depth, DO nutrients, sediments, clay grain size, AVS, 125 contaminants, sediment toxicity; tissue residues for 75 contaminants; biomarkers of fish health; benthic community samples; fish trawls/traps; SAV	K. Summers (904) 934-9244
EPA-3					●			●		Status and trends monitoring for water quality, seagrass, and corals	F. McManus (404) 347-1740
EPA-4 thru EPA-9				●						Field collected indicators of wetland function are assessed & related to NWI data to determine suitability for development; focus on NE Shark River Slough, Rookery Bay, Florida Keys, Loxahatchee Slough, West Broward County, & Biscayne Bay	see individual projects
EPA-10		●		●						EnviroFacts currently contains extracts from portions of several EPA national databases including: FINDS, PCSm TRIS, CERCLIS, & RCRIS	W. Muldoon (703) 235-5583
EPA-11	1:100,000 & 1:5000 river reach; EPA ecoregion boundaries; Indian lands; state/county boundaries; census public law data; 1990 census Tiger files	●		●						Datasets include 1987-1992 Toxic Release Inventory; 1:250,000 GIRAS landuse; and STF-3A census data	A. Battin (703) 235-5591
Fish and Wildlife Service											
FWS-1	USGS topographic maps, NOAA charts; SCS soil surveys; regional land use files				●					Wetland types in specific plots over time; special focus on Collier County; wetland acreage trends.	T. Dahl (813) 570-5420 (fax)
FWS-2	USGS DLG files		●	●						Wetland maps of 1:24,000 scale; wetlands classified using Cowardin system; maps distributed & available	D. Woodard (813) 570-5412
FWS-3	FGFWC classified TM; NWI; land use base map; SFWMD hydrology			●						Distribution of wildlife and endangered/threatened species. Some distributions are predicted.	R. Pace (407) 562-3909
National Biological Service											
NBS-1	NWI coverages, SCS 1:24,000 series, WMD land use coverages, conservation land boundaries			●						Biodiversity, land cover at 30 m resolution from landsat TM, land cover maps being created statewide	L. Pearlstine (904) 392-1861
NBS-2										Data include mapped locations, dbh, and species for trees in 36 one hectare plots; also include cover of understory plants by species	J. Snyder (813) 695-2000
National Oceanic and Atmospheric Administration											
NOAA-1 NOAA-2				●	●					C-CAP is developing a nationally standardized database on land cover & habitat change in coastal regions of the US. C-CAP inventories coastal submerged habitats, wetland habitats, & aquatic uplands; monitors changes on a 1-5 yr cycle	F. Cross (919) 728-8724
NOAA-3	NOS tide gauges; meteorological data; C-man station data; USGS water flow gauges; Everglades National Park monitoring sites; water table and well monitoring data			●						Inventory of monitoring, sampling, & gauging stations	P. Grose (301) 713-3000
NOAA-4	Central and South Florida project information			●						Mapping manmade structures such as canals, weirs, pumps, & siphons	P. Grose (301) 713-3000

Agency ID	Program	Data Category	Geographic Coverage: 1 - Kissimee River Basin	2 - Lake Okeechobee Waterway	3 - Loxahatchee River Region	4 - Everglades Agricultural Area	5 - Water Conservation Areas	6 - Big Cypress Watershed	7 - Everglades National Park	8 - C111 Basin/Card S./Biso. Bay/Ft. Keys	9 - Lower East Coast Urban Area	Ongoing	Planned	Timing: Hard Copy	Digital	Data Storage: Being Distributed	Planned for Distribution	Data Availability: Not Available	Data is Clean	Data Need Some Work	Data Need Lots of Work	Unknown
National Oceanic and Atmospheric Administration																						
NOAA-5	South Florida Ecosystem Restoration Project Support C - Regional Bathymetry	A(T/B)							●				●		●		●					
NOAA-6	South Florida Ecosystem Restoration Project Support D - Benthic Habitat	A(SEC, S/S), B(WET)							●				●		●		●					
NOAA-7	South Florida Ecosystem Restoration Project Support E - Benthic Structures	A(SEC, S/S)							●				●		●		●					
NOAA-8 NOAA-9 NOAA-10 NOAA-11	Florida Keys National Marine Sanctuary	A(HYG, S/S), B(SUB), H(CS, G, P/P/R, REC)							●		●		●	●	●							●
NOAA-12 NOAA-13 NOAA-14	National Status and Trends Program (NOS)	A(S/S), B(FIS, INV)		●				●		●	●	●		●	●	●	●					
NOAA-15	South Florida Ecosystem Restoration Project Support F - Land Cover, Wetlands (NOS/NMFS)	B(LC, UPH, WET)	●	●	●	●	●	●	●	●	●		●		●		●					
NOAA-16	Faunal Responses to Habitat Changes in Florida Bay (Beaufort Lab)	A(HYG, SEC, S/S), B(FIS, INV, WET)							●		●	●	●	●	●							
NOAA-17	Compile Historical Information for Florida Bay Impacts (NOS/RSMAS)	A(C/M, GEO, SEC, S/S), B(SUB, FIS), H(P/H)							●		●		●				●					
NOAA-18	Collection and Assemblage of AVHRR Coastal Satellite Imagery (NMFS/RSMAS)	A(HYG), W(HYL)							●	●	●				●		●					
NOAA-19	The Sediment Record as a Monitor of Natural and Anthropogenic Changes (OAR/RSMAS/FIT)	A(SEC, S/S)							●		●				●							●
NOAA-20	Monitor Responses of Fish and Shellfish to Habitat Changes (NMFS/NBS)	B(FIS, INV)							●		●				●							
NOAA-21	Sampling of Commercially and Recreationally Important Species (NMFS)	B(FIS)							●		●				●		●					
NOAA-22	Monitoring Marine Mammals and Evaluating Methods to Utilize as Ecosystem Health Indicators (NMFS)	B(WIL)							●		●				●		●					
NOAA-23	Initiate a Bioeffects Survey (NOS/NMFS/Dade Cnty.)	A(S/S), B(FIS, INV)							●		●				●		●					
NOAA-24	Archival of Data (NESDIS)	A(C/M, HYG)							●		●											
NOAA-25	NOAA South Florida Contaminants Committee (NMFS/OAR/FDEP)	H(AGR, CON)							●		●			●			●					
NOAA-26	Circulation Modelling Workshop Report Committee (NMFS/OAR/FDEP)	A(HYG)							●		●			●		●						
NOAA-27	Mesoscale Atmospheric Modelling Applied to the South Florida Ecosystem (OAR/NWS/SFWMD)	A(C/M)						●	●	●	●	●			●							
NOAA-28	Regional Numerical Ocean Circulation Modelling System (OAR/NWS/RSMAS/FIT)	A(HYG)							●		●				●		●					
NOAA-29	Evaluate Seagrass Habitat Health and Community Diversity--Compare with Historical Information (NMFS)	B(SUB, FIS)							●		●				●							●
NOAA-30	Environmental Controls Upon Algal Blooms, Food Web Structure, and Carbon Flow (OAR/SFWMD/FDEP)	B(PHY)							●		●				●							

Agency ID	Other Data Being Used in Program	Characteristics: Contaminants	Abundance	Distribution	Status and Trends	Freshwater-surface	Freshwater-ground	Saltwater-surface	Saltwater-ground	Information Content/Summary	Contact
National Oceanic and Atmospheric Administration											
NOAA-5				●						Regional bathymetry; use existing archived bathymetry; digital elevation model; 20 m contour; mean high water shoreline	P. Grose (301) 713-3000
NOAA-6				●						Benthic habitat mapping	P. Grose (301) 713-3000
NOAA-7	Mud Bank delineations from 1967 Coastal Survey conducted by NOS			●						SPOT imagery will be used to map mud banks in Florida Bay	P. Grose (301) 713-3000
NOAA-8 NOAA-9 NOAA-10 NOAA-11	Benthic habitat map			●						Vessel groundings; enforcement violations; boater use; submerged cultural resources; water temperature data; prop scar restoration data; data on bioerosion of reef mass	B. Haskell (305) 743-2437
NOAA-12 NOAA-13 NOAA-14		●	●	●	●			●		Data collected for about 70 contaminants in oysters, fish, and sediments in 8 to 10 sites along the South Florida coast. Biomarkers in fish and oysters. Composition and abundance of macrobenthos.	A. Robertson (301) 713-3000
NOAA-15	C-CAP data			●						Plan to develop system to convert raster data to spatial data transfer standard for national spatial data infrastructure	P. Grose (301) 713-3000
NOAA-16	NOAA nautical charts		●	●	●			●		Zooplankton distribution; fish growth analysis; salinity, water temperature, and PAR; ichyoplankton, fish, and benthic habitat	D. Hoss (919) 728-8746
NOAA-17		●	●		●					Time-series data for global scale atmospheric, geologic, & astronomic phenomena; includes information on species die-off for seagrass, sponges, and fishes; occurrences of algal blooms; coral reef degradation; fishery catch; soil subsidence; human activities	A. Cantillo (301) 713-3000
NOAA-18					●			●		Sea surface temperatures; data being used to prepare mean, median, & maximum sea surface temperature for Florida Bay from 1983 to present	J. Browder (305) 361-4270
NOAA-19										Sediment core data from brackish marginal lakes, the southern terminus of Florida peninsula, and Florida Bay	T. Nelson (305) 361-4408
NOAA-20			●	●				●		This effort will quantify and compare densities of fishes and decapods in central Florida Bay basins (subject to hypersalinity) and western Florida Bay (not subject to hypersalinity)	D. Hoss (919) 728-8046
NOAA-21	From FDEP & Everglades National Park		●							Sampling of commercially and recreationally important fishery resources - focused to provide biological information needed for predictive stock assessment	G. Davenport (305) 361-4468
NOAA-22			●	●	●					Movement and habitat use monitored; tissue samples obtained for chemical analysis	L. Hansen (305) 361-4254
NOAA-23		●			●			●		Bioeffects survey of Biscayne Bay will be conducted during the summers of 1994 & 1995 and include information on sediment toxicity, impairment of fish reproduction, genetic damage of fish, and indicators of toxic chemical effects in bivalve mollusks	U. Varanasi NOAA/NWFSC
NOAA-24				●				●		NESDIS is responsible for collection, quality control, and archiving of all oceanographic and meteorological data	M. Crane (305) 361-4305
NOAA-25		●								Committee formed to identify contaminant sources and potential problems; explore possible means of reducing contaminant inputs	J. Browder (305) 361-4270
NOAA-26								●		Circulation modelling for Florida Bay	J. Klein (301) 713-3000
NOAA-27				●						High resolution/non-hydrostatic mesoscale atmospheric modelling will be used for rainfall prediction in Everglades and Florida Bay; includes surface wind data for Florida Bay	M. Powell (305) 361-9403
NOAA-28								●		Florida Bay circulation modelling information system	G. Maul (407) 768-8000
NOAA-29			●	●				●		Fishery habitat and sampling being conducted along salinity gradients in northwestern Florida Bay	G. Thayer (919) 728-8784
NOAA-30				●				●		Field experiments will be used to determine the importance of various micronutrients, light, salinity, and turbulence in initiating algal bloom formation	W. Gardner (313) 741-2235

Agency ID	Program	Data Category	Geographic Coverage: 1 - Kissimee River Basin	2 - Lake Okeechobee Waterway	3 - Loxahatchee River Region	4 - Everglades Agricultural Area	5 - Water Conservation Areas	6 - Big Cypress Watershed	7 - Everglades National Park	8 - C111 Basin/Card S./Misc. Bay/FL Keys	9 - Lower East Coast Urban Area	Timing: Ongoing	Planned	Data Storage: Hard Copy	Digital	Data Availability: Being Distributed	Planned for Distribution	Not Available	Data is Clean	Data Need Some Work	Data Need Lots of Work	Unknown
National Oceanic and Atmospheric Administration																						
NOAA-31	Relationship of Pink Shrimp Cohorts on Nursery Grounds to Fishery Productivity (NMFS/RSMAS/NBS)	B(INV)							●		●				●							
NOAA-32	Pesticide Analysis of Agricultural Nonpoint Source Waters (NMS/FDEP)	B(FIS, INV), H(AGR), W(HYL, NPS, WQL)							●		●				●							
NOAA-33	Zooplankton Abundance and Grazing Potential (NOAA)	B(PHY)							●		●				●		●					
NOAA-34	NOAA Program Data Operational Support	A(HYG)							●		●				●	●			●			
NOAA-35	National Weather Service/Office of Hydrology	A(C/M)	●	●	●	●	●	●	●	●	●	●										
NOAA-36	Nautical Charting Program	A(B/S, SEC, S/S, T/B), H(TRN)			●			●	●	●	●	●		●	●	●			●	●		
NOAA-37	Remote Sensing of Salinity and Ocean Color Spatial Patterns in Florida Bay	A(HYG), B(PHY)							●				●		●		●					
National Park Service																						
NPS-1	Inventorying and Monitoring Program (Everglades National Park)	A(C/M, HYG), B(ET, FIS, WET, WIL), W(HYL, WQL)						●	●	●		●			●	●			●	●		
NPS-2	Big Cypress National Park Data Base	A(HYG), B(EX, WET, WIL), H(CS, IND, TRN, P/P/R)						●				●		●			●		●	●		
NPS-3	Biscayne National Park Resource Management Program	A(SEC, T/B), H(P/P/R), W(WQL)							●				●	●	●					●		
NPS-4	Everglades National Park GIS Program	A(C/M, HYG, T/B), B(LC, WIL), H(P/P/R), W(HYL)		●		●	●	●	●	●	●	●		●	●							
NPS-5	Visibility Monitoring Program	A(AGY)	●	●	●	●	●	●	●	●	●	●		●	●		●					
U.S. Department of Agriculture																						
USDA-1	Sugarcane Germplasm Enhancement (Agricultural Research Service)	A(S/S), H(AGR)				●						●										
USDA-2	Limitations of Environmental Stresses and Physiological Response on Crop Productivity (Agricultural Research Service)	A(S/S), H(AGR)	●	●	●	●				●	●											
USDA-3	Carbon Dioxide Climatic Change Effects of Crops (Agricultural Research Service)	B(WET), H(AGR)	●	●	●	●	●	●	●		●	●										
USDA-4	Biological Control of Aquatic and Wetland Weeds for Protection of Groundwater Quality (Agricultural Research Service)	B(WET), H(AGR)	●	●	●	●	●	●	●	●	●	●										
USDA-5	Soil Surveys and Hydrology (Soil Conservation Service)	A(HYG, S/S), W(HYL, WQL)																				
U.S. Geological Survey																						
USGS-1	Southern Florida National Water Quality Assessment (SOFL-NAWQA)	W(WQL)	●	●	●	●	●	●	●	●	●	●		●	●		●					
USGS-2	Water Resources Division	W(HYL, WQL, WUS)	●	●	●	●	●	●	●	●	●	●		●	●			●			●	
USGS-3	Support for the South Florida Ecosystem Restoration Task Force	A(T/B)	●	●	●	●	●	●	●	●	●		●		●		●					

Agency ID	Other Data Being Used in Program	Characteristics: Contaminants	Abundance	Distribution	Status and Trends	Freshwater-surface	Freshwater-ground	Saltwater-surface	Saltwater-ground	Information Content/Summary	Contact
National Oceanic and Atmospheric Administration											
NOAA-31			●	●	●					Includes statistical analyses, biological modelling, physiological trials, caging experiments, resource surveys, and genetic analyses	J. Browder (305) 361-4270
NOAA-32		●	●	●	●	●		●		Pesticide runoff; ecotoxicological assessment of fish and crustacean populations in Florida Bay; models for pesticide runoff; contaminant information	G. Scott (803) 762-1200
NOAA-33	CTD data; climatology data; DMA shoreline data		●	●						Key research components will be to sample the abundance of the zooplankton community and determine the grazing rates. Seasonal and spatial distribution will be linked to environmental parameters	P. Ortner (305) 361-4384
NOAA-34										Includes information from NESDIS data centers; CMAN stations in South Florida; NODC taxonomic code master file	M. Crane (305) 361-4305
NOAA-35				●						Provide hourly precipitation estimates	J. Vogel (301) 713-1669
NOAA-36				●						NOAA Nautical Charting Program contains significant information about current and historical shorelines, water depth, & bottom configuration	Naut. Chart. (301) 713-2770
NOAA-37	Groundtruth data on salinity, phytoplankton, biomass, chlorophyll, and dissolved organic materials will be collected		●	●						A pilot study to test the application, work out the logistics and protocols for a routine monitoring activity that would map surface salinities at 200m (to a side) resolution, map ocean color, and allow for analysis of chlorophyll and organic matter	J. Browder (305) 361-4270
National Park Service											
NPS-1	USGS, SFWMD, USACOE hydrological data		●	●		●		●		Data base includes information on population, abundance, distribution, and characteristics of over 50 fish & wildlife species; freshwater hydrology database includes surface & groundwater, streamflow, water quality, meteorological, & climatological data	D. Busch (305) 242-7800
NPS-2				●						Area is managed for: recreation, species restoration, petroleum production, exotic species eradication, & fire suppression. GIS layers include transportation, boundaries, vegetation, hydrography, fire areas, wildlife, archaeological sites, & other themes	F. Partridge (813) 695-2000
NPS-3				●				●	●	Data collected in Biscayne Bay and adjacent coastal area; includes benthic topography, subbottom profile, magnetometry, ground and surface water quality, and biological information	R. Curry (305) 247-2044
NPS-4	USGS 1:24,000 quad data			●		●		●		GIS database developed for ecosystem restoration and management; includes wildlife, hydrological data, vegetation data, Florida Bay bathymetry, and ENP water quality/meteorological sites	D. Buker (305) 242-7800
NPS-5	Meteorological data collected by the park	●		●						Detailed data regarding the complete fine particulated distribution for air parcels moving through ENP; in addition, records of visibility status are kept	T. Schmidt (305) 242-7800
U.S. Department of Agriculture											
USDA-1										Breeding and selection of sugarcane cultivars	J.D. Miller (407) 924-5227
USDA-2										Crop productivity; soil water stresses	T. Sinclair (904) 392-6180
USDA-3										Relationship between carbon dioxide and elevated temps. on agr. crops as well as selected wetland species; crop responses to constant/high water table environments; water tables manipulations for nematode control	L.H. ALlen (904) 392-6180
USDA-4										Biological and other control techniques for aquatic and wetland weeds; plant and insect demographics; plant/insect reproductive biology; plant/insect ecogenetics; intraspecific plant competition	T.D. Center (305) 475-0541
USDA-5										Includes county soil survey maps; includes information on location of primary, secondary, and tertiary canals	K. Liudahl (407) 439-1770
U.S. Geological Survey											
USGS-1	USGS DLG maps, EPA STORET, USGS NWIS, and BOC TIGER	●		●	●	●				Collect water quality data for current conditions; to define long-term trends; and to identify, describe, and explain major factors that affect observed water quality	B. McPherson (813)228-2124
USGS-2	USGS NWIS; TIGER; 1:100,000 DLG's; 1:2,000,000 DLG's			●		●	●			Groundwater flow models; water quality; water quantity; water levels	R.Sonenshein (305)526-2895
USGS-3	NAPP			●						High resolution elevation data at half mile spacing with accuracies of 0.6 ft.	M. Kelly (703) 648-4635

Agency ID	Program	Data Category	Geographic Coverage: 1 - Kissimee River Basin	2 - Lake Okeechobee Waterway	3 - Loxahatchee River Region	4 - Everglades Agricultural Area	5 - Water Conservation Areas	6 - Big Cypress Watershed	7 - Everglades National Park	8 - C111 Basin/Card S./Bisc. Bay/FL Keys	9 - Lower East Coast Urban Area	Timing: Ongoing	Planned	Data Storage: Hard Copy	Digital	Data Availability: Being Distributed	Planned for Distribution	Not Available	Data is Clean	Data Need Some Work	Data Need Lots of Work	Unknown
State																						
Florida Department of Community Affairs																						
FDCA-1	Coastal Information Exchange		●	●	●	●	●	●	●	●	●	●			●							●
FDCA-2	Division of Resource Planning & Management	H(LU, P/H, TRN)	●	●	●	●	●	●	●	●	●		●	●	●							
FDCA-3	Establish Geographic Database of Developments of Regional Impact	H(P/H, P/P/R)											●	●	●							
Florida Department of Environmental Protection																						
FDEP-1	Florida Geological Survey (Technical Services Division)	A(GEO)	●	●	●	●	●	●	●	●	●	●		●	●	●				●		
FDEP-2	Bureau of Information Systems/GIS Program	A(HYG, S/S), B(WET), H(LU, TRN, P/JB), W(HYL, WQL)	●	●	●	●	●	●	●	●	●	●	●		●	●						
FDEP-3	Park Management (Recreation and Parks)	B(E/T, EX, WIL, UPH, BIR), W(WQL)		●	●				●	●	●	●		●						●		
FDEP-4	Artificial Reef Program (Office of Fisheries Management)	B(SUB)								●				●				●			●	
FDEP-5	Ground Water Quality Monitoring Program (Division of Water Facilities)	H(LU), W(WQL)	●		●	●	●	●	●		●	●	●		●	●			●			
FDEP-6	319 Grant Program - Western Everglades Restoration Project (FDEP/SFWMD)	A(SIS), B(FIS, INV, WET), W(HYL, WQL)						●					●	●	●		●					
FDEP-7	Nonpoint Source Bioassessment Program	B(INV), W(WQL)		●	●							●		●	●						●	
FDEP-8	Surface Water Quality Data Collection and Assessment (Division of Water Facilities)	W(WQL)	●	●	●	●	●	●	●	●	●	●			●	●			●			
FDEP-9	Shellfish Harvesting Area Classification and Management (Division of Marine Resources)	B(INV), W(WQL)		●						●		●		●	●	●			●			
FDEP-10	Coastal and Aquatic Area Management (Division of Marine Resources)	B(SUB, LC), H(LU, P/P/R), W(WQL)		●	●			●		●	●	●		●	●						●	
FDEP-11	Florida Air Quality Monitoring Program (Division of Marine Resources)	A(AQY)			●						●	●		●	●	●			●			
FDEP-12	Permit Site Application Assessment A (Division of Environmental Resource Permitting)	A(HYG), B(LC, WET), H(LU)	●	●	●	●	●	●	●	●	●		●	●	●			●				
FDEP-13	Permit Site Application Assessment B (Division of Environmental Resource Permitting)	B(WET), H(P/P/R)	●	●	●	●	●	●	●	●	●	●		●	●					●		
FDEP-14	Mandatory Nonphosphate Reclamation (Bureau of Mine Reclamation)	A(T/B) H(LU, IND)	●	●	●	●	●	●	●	●	●	●		●	●	●				●		
FDEP-15	Permit Site Application Assessment C (Division of Environmental Resource Permitting)	H(P/JB, P/P/R)	●	●	●	●	●	●	●	●	●		●	●	●			●				
FDEP-16	South Florida District	A(AQY), W(WWD)	●	●				●	●	●		●				●						
FDEP-17	NPDES Outfall Location	H(IND), W(HYL, WWD)	●	●	●	●	●	●	●	●	●	●			●		●	●				

Agency ID	Other Data Being Used in Program	Characteristics: Contaminants	Abundance	Distribution	Status and Trends	Freshwater-surface	Freshwater-ground	Saltwater-surface	Saltwater-ground	Information Content/Summary	Contact
State											
Florida Department of Community Affairs											
FDCA-1	This is a BBS									BBS News and Coastal Information	J. Dorst (904) 922-5438
FDCA-2	Tiger & DLG Files			●	●					Database will include jurisdictional boundaries; landuse & demographic information	H. Bitlaker (904) 488-4925
FDCA-3				●						*Database will include the location, size, land uses, amounts* of protected lands, housing units, square feet of non-residential uses for each DRI. Housing data for each DRI will also be included	H. Bitlaker (904) 488-4925
Florida Department of Environmental Protection											
FDEP-1				●			●				W. Schmidt (904) 488-9380
FDEP-2	NWI, LANDSAT satellite imagery						●			Land use, transportation, public land survey, hydrography, census data	R. Roaza (904) 488-0892
FDEP-3			●	●	●	●		●		Includes data of sea turtles, shore birds, water quality, road kill, exotic removal in state parks; Includes plant & animal inventories for state parks.	M. Glisson
FDEP-4										Artificial reef locations	J. Dodrill
FDEP-5		●			●		●			Provides ability to map chemical and physical aquifer characteristics; determine current ground water quality conditions; evaluate water quality changes over time; define relationships between land use and water quality; aid in land use planning	R. Copeland (904) 921-5655
FDEP-6					●	●		●		Includes information on hydrologic modification, nutrient enrichment, seagrass, habitat degradation, & shellfish harvesting	E. McCarron SC 291-9916
FDEP-7		●	●		●	●				Water chemistry nutrient samples and benthic macroinvertebrate samples are collected to determine health of streams and lakes	E. McCarron SC 291-9916
FDEP-8	STORET				●	●				Surface water quality ambient monitoring data; status and trends of watersheds throughout state; data included in report providing a statewide water quality assessment	J. Hand (904) 487-0505
FDEP-9		●		●	●			●		Shellfish classification areas; drainage patterns; hydrology; soil type; water table; pollution sources; water circulation	R. Thompson (904) 488-5471
FDEP-10	NWI				●			●		Land cover, land use, resource inventories, water quality	A. Hartman (904) 488-3456
FDEP-11		●		●	●					Data collected at 44 sites on wind speed and direction and for selected pollutants	B. Kerchkoff SC 278-6140
FDEP-12	DIG hydrography and boundaries			●						Creation of mitigation bank sites and outstanding Florida waters database	K. Schmidt (904) 488-0130
FDEP-13				●						Dredge and fill permits; mitigation sites; conservation easements	K. Schmidt (904) 488-0130
FDEP-14	State and county boundaries; USGS topographic map grid and map names			●						Mine location and acreage	G. Daugherty (904) 488-8217
FDEP-15										Statewide WMD conservation elements will be obtained	K. Swanson
FDEP-16	STORET, COMET, STI, PCT, TEMPID				●	●	●			Air pollution information systems; AQS; groundwater	R. Blackburn (813) 332-6975
FDEP-17		●				●				Data base contains information such as type and quantity of discharge, permitted effluent limits, and permit limit violations	B. Howe (904) 487-1784

Agency ID	Program	Data Category	Geographic Coverage: 1 - Kissimee River Basin	2 - Lake Okeechobee Waterway	3 - Loxahatchee River Region	4 - Everglades Agricultural Area	5 - Water Conservation Areas	6 - Big Cypress Watershed	7 - Everglades National Park	8 - C111 Basin/Card S./Bisc. Bay/FL Keys	9 - Lower East Coast Urban Area	Timing: Ongoing	Planned	Data Storage: Hard Copy	Digital	Data Availability: Being Distributed	Planned for Distribution	Not Available	Data is Clean	Data Need Some Work	Data Need Lots of Work	Unknown
Florida Department of Environmental Protection																						
FDEP-18	Pollutant Discharge Prevention and Response Program	H(HAZ)	●	●	●	●	●	●	●	●	●	●		●	●							●
FDEP-19	FMRI-1: Marine Resources	B(SUB, E/T, FIS, INV, PHY, WET), H(REC), W(WQL)								●		●	●	●	●	●	●					
FDEP-20	FMRI-2: Marine Resources	B(E/T, FIS), H(REC)		●	●			●			●	●		●	●	●	●					
FDEP-21	Wetlands Regulation Tracking and Assessment	B(SUB,WET)	●	●	●	●	●	●	●	●	●	●			●							●
FDEP-22	Living Marine Resources	H(LU)	●	●	●	●	●	●	●	●	●	●			●							●
FDEP-23	Beach Access Enhancement	A(B/S)		●	●			●		●	●	●			●							●
FDEP-24	Air Resources Management	A(AQY)	●	●	●	●	●	●	●	●			●	●	●		●			●		
FDEP-25	CERCLA Site Screening Section/Technical Review Section	H(CON), W(HYL)	●	●	●	●	●	●	●	●	●	●	●	●				●			●	
FDEP-26	Federal Facilities-Technical Review Section	H(CON), W(HYL)							●	●	●	●		●				●		●		
FDEP-27	Bureau of Waste Cleanup - Storage Tank Regulation	H(CON)									●				●					●		
FDEP-28	Florida Mercury Research Program	A(AQY), H(CON),				●	●	●	●	●	●	●		●	●	●	●				●	
Florida Game and Freshwater Fish Commission																						
FGFC-1	Nongame Habitat Protection and Restoration (Office of Environmental Services)	B(E/T, LC, UPH, WET, WIL)	●	●	●	●	●	●	●	●	●	●		●	●	●			●			
FGFC-2	Nongame Wildlife Survey & Monitoring (Division of Wildlife)	B(BIR)	●	●	●	●	●	●	●	●	●	●	●		●	●			●			
FGFC-3	Wildlife Research (Division of Wildlife)	B(E/T, WIL, BIR)	●	●	●	●	●	●	●	●	●	●		●	●	●				●		
FGFC-4	Wildlife Management (Division of Wildlife)	B(WIL, BIR), H(P/P/R)	●	●	●	●	●	●	●	●	●	●		●	●						●	
FGFC-5	Wildlife Species Management (Division of Wildlife)	B(E/T, WIL, BIR)	●	●			●					●		●	●						●	
FGFC-6	Fisheries Management (Division of Fisheries)	B(FIS, INV), H(REC)	●	●	●	●	●	●				●		●		●					●	
FGFC-7	Fisheries Research (Division of Fisheries)	B (EX, FIS)	●	●	●	●	●	●	●		●	●		●	●	●				●		
Office of the Governor																						
OG-1	Federal Consistency	H(LU)	●	●	●	●	●	●	●	●	●	●			●							●
OG-2	Automated Central Information Directory		●	●	●	●	●	●	●	●	●	●			●							●

Agency ID	Other Data Being Used in Program	Characteristics: Contaminants	Abundance	Distribution	Status and Trends	Freshwater-surface	Freshwater-ground	Saltwater-surface	Saltwater-ground	Information Content/Summary	Contact
Florida Department of Environmental Protection											
FDEP-18				●		●				Location of pollutant dischargers; pollutant types; environmental impacts	D. Preble (904) 488-2974
FDEP-19	NOAA bathymetry; USGS quads; NOAA nautical charts shoreline; NWI; navigation aids; road networks; DEP marine facilities; FNAI		●	●	●			●		Algal bloom mapping; phytoplankton distribution & production; invert. distribution; benthic mapping; mangrove monitoring; manatee and sea turtle monitoring; marine facilities	K. Haddad (813) 896-8626
FDEP-20	NOAA bathymetry; USGS quads; NOAA nautical charts shoreline; NWI; navigation aids; road networks; DEP marine facilities; FNAI		●	●	●					Manatee and sea turtle monitoring; fish and abundance and distribution monitoring; marine facilities	K. Haddad (813) 896-8626
FDEP-21				●	●					Data consists of selected information on permits issued by FDEP; site location; permit type; size & nature of impact; acreage & type of wetlands lost, created, enhanced, or preserved	J. Stoutamire (904) 488-0130
FDEP-22				●						Statewide dock inventory	M. Ashey (904) 488-2294
FDEP-23		●		●	●					Inventory & mapping of all publicly-owned properties that border the Atlantic Ocean, Straits of Florida, and Gulf of Mexico	P. Flood (904) 487-1262
FDEP-24	CFC's, Asbestos	●		●						Air facility inventory data on regulated air pollutants	B. Moore (904) 488-3935
FDEP-25		●		●		●	●			Includes groundwater, surface water, soil & sediment sampling, CERCLA sites. Data available in hard copy, however locations for FL CERCLA sites in a GIS (only a subset is verified)	T. Knowles
FDEP-26		●		●		●	●			*Includes groundwater, surface water, soil & sediment* sampling of potential cleanup sites of military installations	J. Caspary (904) 488-3935
FDEP-27		●		●						Includes latitude & longitude of sites registered to contain contaminated materials. Contamination information will eventually be combined with site data	R. Mills (904) 488-0892
FDEP-28	Everglades water quality, quantity, and models	●	●	●	●					Interagency research program to determine the sources of Mercury in Florida waters, determinants of the rates of biotransformation and bioaccumulation of mercury, risks to fauna, and the development of management strategies with options for implementation	T. Atkeson (904) 922-2843
Florida Game and Freshwater Fish Commission											
FGFC-1	DLG's; FNAI occurrence records; FLDOT; TIGER; STATSGO; Generalized Soils			●						Statewide vegetation & land cover data; habitat conservation areas; regional biodiversity hot spots; priority wetlands for endangered species	R. Kautz (904) 488-6661
FGFC-2			●	●	●					Ongoing survey and monitoring program to determine status and trends of selected nongame wildlife; includes lat & long, species name, number of individuals, date of observation, *sex, age, observer, & habitat*	G Reynolds (904) 921-5982
FGFC-3			●	●	●					Survey and monitoring program for panther, brown pelican, bald eagle, crocodile, grasshopper sparrow, and snail kite	T. Logan (904) 488-3831
FGFC-4			●	●	●					Surveys for various game and nongame species in wildlife management areas; natural wildfire boundaries in the Everglades (includes site specific data)	F. Smith (904) 488-3831
FGFC-5			●	●						Surveys of alligators, alligator nests, wintering waterfowl, and mottled ducks; data used for management and harvest of these species	T. O'Meara (904) 488-3831
FGFC-6			●	●		●				Status of fish populations; fish kill records; boat ramp locations; recreational fishing (i.e., number of anglers, number of fish caught, amount of time spent fishing)	T. Vaughn (904)488-4069
FGFC-7		●	●			●				Program monitors mercury in fish at selected sites in the Everglades and Ten Thousand Islands area; data are spatially referenced	F. Ware (904) 488-4067
Office of the Governor											
OG-1										Location and information on federal consistency permits	
OG-2										An automated information/data directory for environmental sources	D. Stage (904) 488-7986

			Geographic Coverage											Timing		Data Storage	Data Availability					
Agency ID	Program	Data Category	1- Kissimee River Basin	2- Lake Okeechobee Waterway	3- Loxahatchee River Region	4- Everglades Agricultural Area	5- Water Conservation Areas	6- Big Cypress Watershed	7- Everglades National Park	8- C111 Basin/Card S./Bisc. Bay/FL Keys	9- Lower East Coast Urban Area	Ongoing	Planned	Hard Copy	Digital	Being Distributed	Planned for Distribution	Not Available	Data is Clean	Data Need Some Work	Data Need Lots of Work	Unknown
Regional																						
South Florida Water Management District																						
SFWMD-1	South Florida Boundaries	A(T/B), H(P/JB)	●	●	●	●	●	●	●	●	●	●			●	●						
SFWMD-2	SFWMD GIS Database	A(C/M, HYG, S/S), B(LC, WET), H(P/H, TRN), W(HYL, WCS, WUS)	●	●	●	●	●	●	●	●	●	●			●	●						
SFWMD-3	Hydrography	A(HYG)	●	●	●	●	●	●	●	●	●	●			●	●						
SFWMD-4	Public Land	H(P/JB, P/P/R)	●	●	●	●	●	●	●	●	●	●			●	●						
SFWMD-5	Land Use/Cover	B(LC), H(LU)	●	●	●	●	●	●	●	●	●				●	●						
SFWMD-6	Monitor Stations	A(C/M), W(HYL, WCS, WUS)	●	●	●	●	●	●	●	●	●	●			●	●						
SFWMD-7	Water Use Permits	W(WUS)	●	●	●	●	●	●	●	●	●	●			●	●						
SFWMD-8	Demographic Data	H(P/H)	●	●	●	●	●	●	●	●	●	●			●	●						
SFWMD-9	Soil Data	A(S/S)	●	●	●	●	●	●	●	●	●	●			●	●						
SFWMD-10	Transportation	H(TRN)	●	●	●	●	●	●	●	●	●	●			●	●						
SFWMD-11	WQ Monitoring of FL Bay	W(WQL)							●				●									
Local																						
Dade County (DERM)																						
Dade-1	Ambient Groundwater (DERM)	W(HYL)					●		●		●	●		●	●	●						
Dade-2	General Canal (DERM)	W(HYL)					●		●		●	C		●	●	●						
Dade-3	Natural Areas Inventory (DERM)	B(UPH, WET, E/T)							●	●	●	●	●	●	●							●
Dade-4	Northwest Wellfield Monitoring (DERM)	W(HYL)									●	●		●	●	●						
Dade-5	Alexander Orr Wellfield Monitoring (DERM)	W(HYL)									●	●		●	●	●						
Dade-6	Biscayne Bay Surface Water Quality Monitoring Program (DERM)	A(S/S), W(WQL)								●	●	●	●	●	●							
Dade-7	West Wellfield Monitoring (DERM)	W(HYL, WQL)					●		●		●	●		●	●	●						
Monroe County																						
MC-1	Monroe County GIS Program	A(B/S), B(UPH, WET), H(TRN, P/H)								●		●			●		●	●			●	
MC-2	Advance Identification of Wetlands for the Florida Keys	B(LC, WET), H(P/JB)								●		●		●	●		●	●			●	
MC-3	Channel Marking Plan	B(SUB), H(REC)								●		C			●		●		●			
MC-4	Florida Keys Hardwood Hammock	B(E/T, EX, UPH)								●		●			●		●	●			●	
MC-5	Cesspool Identification and Elimination Project	W(WWD)								●		●			●							●

Agency ID	Other Data Being Used in Program	Characteristics: Contaminants	Abundance	Distribution	Status and Trends	Freshwater-surface	Freshwater-ground	Saltwater-surface	Saltwater-ground	Information Content/Summary	Contact
Regional											
South Florida Water Management District											
SFWMD-1	USGS 7.5 minute quads			●						Includes the SFWMD boundaries; county boundaries; drainage basin boundaries; simplified shorelines; USGS 7.5 minute quad boundaries	B. Brown (407) 686-6051
SFWMD-2	Demographic, transportation, soil, and national wetland data from outside sources		●	●		●	●			Primary data layers include existing land use/ land cover; water use permit information by county; monitoring stations for ground & surface water & rainfall; hydrographic data for canals, rivers, lakes; and manmade structure data	B. Brown (407) 686-6051
SFWMD-3	DLG data from the USGS at 1:100,000									Currently working on a more detailed hydrography data layer derived from 1:24,000 scale USGS quad maps	B. Brown (407) 686-6051
SFWMD-4				●						Boundaries of publicly owned lands which consists of "Save Our Rivers" lands; state or federal lands; Indian lands; conservation & recreation lands; and conservation areas	B. Brown (407) 686-6051
SFWMD-5				●	●					Existing land use/cover and future land use/cover	B. Brown (407) 686-6051
SFWMD-6				●	●	●	●	●	●	Locations and data from weather stations, flow stations, and groundwater stations	B. Brown (407) 686-6051
SFWMD-7										*Water use permit data including locations of permit boundaries*	B. Brown (407) 686-6051
SFWMD-8	Census Tiger files			●						Population and housing Data	B. Brown (407) 686-6051
SFWMD-9	USGS Quads, SCS soil coverage			●						Digitized soil coverages	B. Brown (407) 686-6051
SFWMD-10	USGS DLG 1:100,000			●						Road Network of South Florida	B. Brown (407) 686-6051
SFWMD-11					●			●		Surface water quality monitoring of SW FL Shelf	C. Weaver (407) 686-8800
Local											
Dade County (DERM)											
Dade-1		●			●		●			Data on 30 wells throughout Dade Cnty for: anions, cations, nutrients, metals, BOD, COD, TDS, TSS, turbidity, color, phenols, VOC, pesticides, physical-chemical data	J. Baker (305) 372-6900
Dade-2		●			●	●				Surface water quality on 15 Biscayne Bay tributaries for: anions, cations, nutrients, metals, BOD, COD, TDS, TSS, turbidity, color, phenols, VOC, pesticides, physical-chemical data	J. Baker (305) 372-6900
Dade-3	Data from the Dade County Information Technology Dept.			●						Coverages available include several freshwater wetland basins in northwestern and southern Dade county; coastal wetlands along southeastern Biscayne Bay; some upland forests and distribution of select submerged plant species	S. Markley (305) 372-6863
Dade-4		●			●	●	●			Monitoring data for 53 ground water monitoring sites & 3 canal surface water sites	J. Baker (305) 372-6900
Dade-5		●			●		●			Monitoring data for ground water at 40 sites for: PAH's, pthalates, water level data, nutrients, metals, halogenated hydrocarbons, carbonates, pesticides, cations, anions, and physical-chemical data	J. Baker (305) 372-6900
Dade-6	Shoreline, urban infrastructure, and surface water coverages	●			●			●		Water quality samples are collected routinely; toxicity, mussel and sediment samples are collected as part of various investigative projects	R.Peter Buch (305) 372-6859
Dade-7		●			●		●			Monitoring data for 14 groundwater sites	J. Baker (305) 372-6900
Monroe County											
MC-1										Shoreline, roads, bridge parcels, subdivisions, utilities, zoning, & habitat boundaries scale at 1:24,000	G. Garrett (305) 289-2507
MC-2	FDOT aerial photos			●						Will provide information about wetland jurisdiction and "suitable" versus "unsuitable" areas for development	G. Garrett (305) 289-2507
MC-3				●						Channel markers, marine facilities, benthic mapping	G. Garrett (305) 289-2507
MC-4				●	●					Location and boundaries of hardwood hammocks in the Florida Keys	G. Garrett (305) 289-2507
MC-5				●						Locations of storage disposal systems, septic tanks and package plants	H. Larson

Agency ID	Program	Data Category	Geographic Coverage: 1 - Kissimee River Basin	2 - Lake Okeechobee Waterway	3 - Loxahatchee River Region	4 - Everglades Agricultural Area	5 - Water Conservation Areas	6 - Big Cypress Watershed	7 - Everglades National Park	8 - C111 Basin/Card S./Bisc. Bay/Ft. Keys	9 - Lower East Coast Urban Area	Timing: Ongoing	Planned	Data Storage: Hard Copy	Digital	Being Distributed	Planned for Distribution	Data Availability: Not Available	Data is Clean	Data Need Some Work	Data Need Lots of Work	Unknown
Palm Beach County																						
Palm-1	Wellfield Protection	B(LC), H(LU), W(HYL, WUS)			●					●	●			●	●	●			●			
Palm-2	Water Quality Monitoring	W(WQL)			●	●				●	●			●	●					●		
Palm-3	NPDES	W(NPS, WWD)			●	●				●	C			●	●						●	
Palm-4	Pollutant Storage Tanks and Petroleum Containment Cleanup Sites	H(CON)			●	●				●	●			●	●					●		
Palm-5	Hazardous Waste Sites	H(CON)			●	●				●	●				●				●			
Palm-6	Environmentally Sensitive Lands	B(UPH, WET, LC), H(P/P/R)			●					●	●			●	●	●			●			
Palm-7	Jurisdictional Wetlands	B(WET)			●					●	●			●							●	
Palm-8	Land Use	B(LC), H(LU, P/H)			●	●				●	●			●	●	●				●		
Palm-9	Solid Waste	H(CON)			●	●				●	●			●	●	●			●			
Palm-10	Palm Beach Cnty. GIS	H(LU, TRN)			●	●				●			●					●					
Palm-11	Shoreline Protection Section	A (B/S, T/B, SEC), B(SUB)			●					●	●			●	●		●					
Palm-12	Shore Protection - Dune Restoration	A(B/S, T/B)			●						●			●	●				●			
Palm-13	Environmental Resources Management	A(B/S, T/B)			●					●	●			●	●					●		
Palm-14	Shore Protection Section - Coastal Property	A(B/S), H(LU)			●					●	●			●	●						●	
Palm-15	Shoreline Protection Section	A(T/B), H(CS)			●						●			●	●				●			
Palm-16	Shore Protection - Palm Beach/South Palm Beach	A(T/B, SEC), B(SUB)			●					●	●			●	●					●		
Palm-17	Shore Protection - Sea Turtles	B(E/T)			●					●	●							●			●	
Palm-18	Environmental Enhancement Section	A(B/S, T/B), B(SUB, E/T)			●					●	C			●	●				●			

Agency ID	Other Data Being Used in Program	Characteristics: Contaminants	Abundance	Distribution	Status and Trends	Freshwater-surface	Freshwater-ground	Saltwater-surface	Saltwater-ground	Information Content/Summary	Contact
Palm Beach County											
Palm-1	Section lines, municipal boundaries			●			●				R. Walesky (407) 355-4011
Palm-2	Storet				●	●	●			Ambient ground & surface monitoring	R. Walesky (407) 355-4011
Palm-3	Roads, canals, land use, land cover, drainage basins, section lines, public lands	●		●		●				Stormwater outfalls	R. Walesky (407) 355-4011
Palm-4	STI & PCT	●		●						*Locations of registered pollutant storage tanks and petroleum contamination cleanup sites*	R. Walesky (407) 355-4011
Palm-5	NPL, CERCLIS, RCRIS	●		●						Hazardous waste sites	R. Walesky (407) 355-4011
Palm-6	1:24,000 aerial photos			●						Boundaries of environmentally sensitive lands	R. Walesky (407) 355-4011
Palm-7	1:24,000 aerial photos			●						Isolated wetlands	R. Walesky (407) 355-4011
Palm-8				●						Existing and future land use	M. Kanefsky (407) 233-5318
Palm-9		●		●						Solid waste sites in Palm Beach County	K. Berg (407) 640-4000
Palm-10	NAD83, digital ortho photography, property appraisers database			●						Automated property ownership maps	R. Pearsall (407) 355-2823
Palm-11				●						All hardbottom within 3,000 feet from shoreline, including natural reefs, wrecks & debris, artificial reefs, and erosion control structures	R. Walesky (407) 355-4011
Palm-12										Design & final profiles at <100' interval transects a a dune restoration project at Jupiter Beach, Carlin Park, and Coral Grove Park	R. Walesky (407) 355-4011
Palm-13	Aerial Photographs			●						Map nearshore hardbottom in project areas of Singer Island	R. Walesky (407) 355-4011
Palm-14				●						Inventory of coastal properties in County	R. Walesky (407) 355-4011
Palm-15	Profiles and artificial reef locations			●						Nearshore reef locations at beach restoration projects	R. Walesky (407) 355-4011
Palm-16				●							R. Walesky (407) 355-4011
Palm-17			●	●						*Countywide sea turtle zones*	R. Walesky (407) 355-4011
Palm-18			●	●	●			●		Resource inventory of impacted and natural resource areas of the Intracoastal Waterway	R. Walesky (407) 355-4011

Appendix C: Summary of Program Information by Data Category

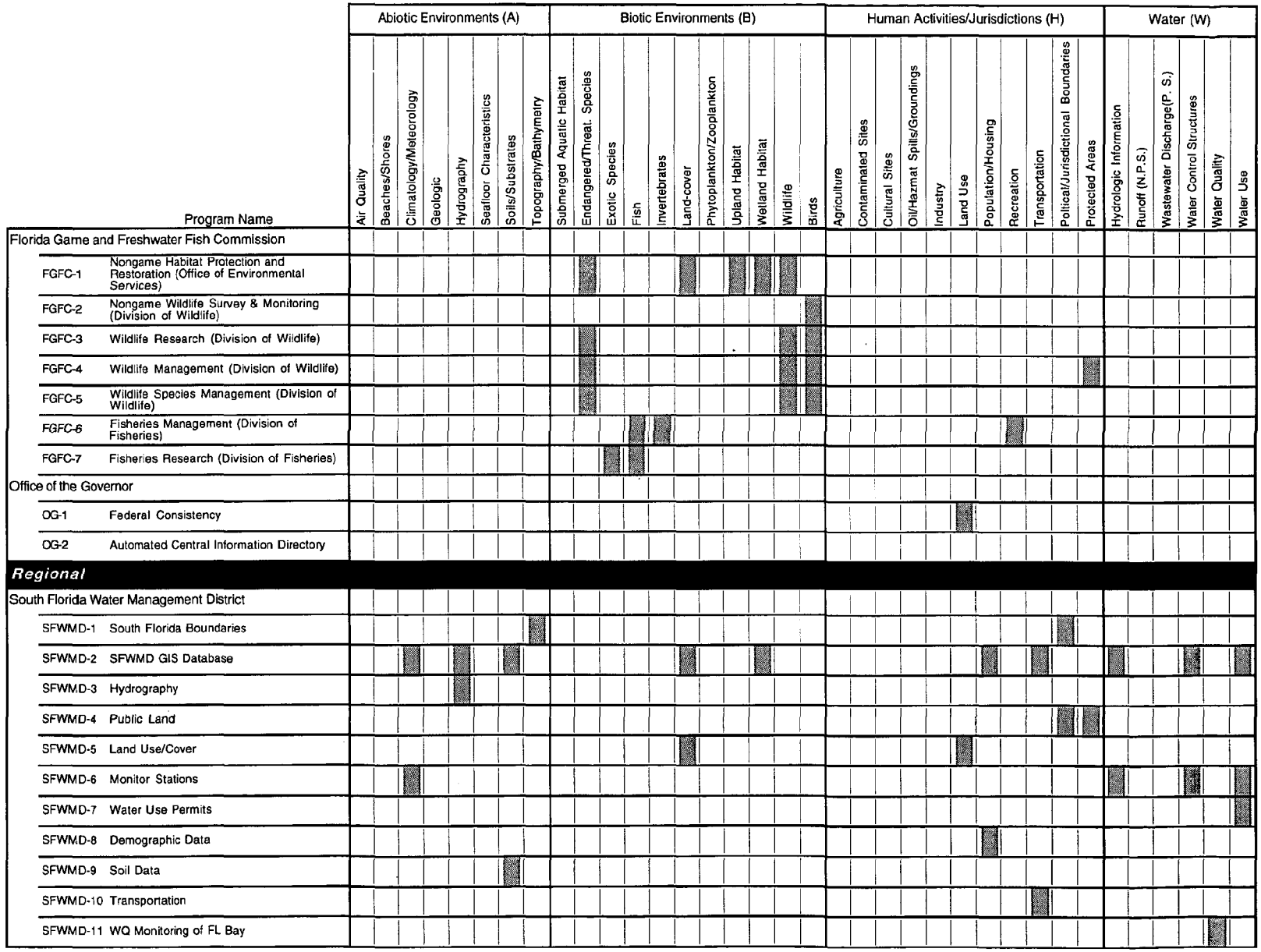
Program Name		Abiotic Environments (A)								Biotic Environments (B)										Human Activities/Jurisdictions (H)										Water (W)							
		Air Quality	Beaches/Shores	Climatology/Meteorology	Geologic	Hydrography	Seafloor Characteristics	Soils/Substrates	Topography/Bathymetry	Submerged Aquatic Habitat	Endangered/Threat. Species	Exotic Species	Fish	Invertebrates	Land-cover	Phytoplankton/Zooplankton	Upland Habitat	Wetland Habitat	Wildlife	Birds	Agriculture	Contaminated Sites	Cultural Sites	Oil/Hazmat Spills/Groundings	Industry	Land Use	Population/Housing	Recreation	Transportation	Political/Jurisdictional Boundaries	Protected Areas	Hydrologic Information	Runoff (N,P,S,)	Wastewater Discharge(P, S,)	Water Control Structures	Water Quality	Water Use
Federal																																			
Army Corps of Engineers																																			
	ACOE-1 Water Management Decision Support System (Jacksonville District)																																		
	ACOE-2 Central and S. Florida Project Restudy (A) (Jacksonville District)																																		
	ACOE-3 Central and S. Florida Project Restudy (B) (Jacksonville District)																																		
	ACOE-4 Survey Branch/Engineering Division (Jacksonville District)																																		
	ACOE-5 Coast of Florida Erosion & Storm Effects Study (Jacksonville District)																																		
	ACOE-6 Regulatory Analysis & Management System																																		
Environmental Protection Agency																																			
	EPA-1 Everglades Mercury Study (REMAP)																																		
	EPA-2 Environmental Monitoring and Assessment Program (EMAP) - Estuaries																																		
	EPA-3 Florida Keys Water Quality Protection Program (EPA/FDEP)																																		
	EPA-4 thru EPA-9 Wetlands Advance Identification Projects																																		
	EPA-10 EnviroFacts Project																																		
	EPA-11 Spatial Data Clearinghouse																																		
Fish and Wildlife Service																																			
	FWS-1 National Wetlands Inventory (A) - Wetland Status and Trends																																		
	FWS-2 National Wetlands Inventory (B)																																		
	FWS-3 Ecological Services - Vero Beach Field Office																																		
National Biological Survey																																			
	NBS-1 Florida Biological Diversity Project																																		
	NBS-2 Long-term Fire Ecology (Big Cypress National Preserve)																																		

Program Name	Abiotic Environments (A)								Biotic Environments (B)									Human Activities/Jurisdictions (H)										Water (W)						
	Air Quality	Beaches/Shores	Climatology/Meteorology	Geologic	Hydrography	Seafloor Characteristics	Soils/Substrates	Topography/Bathymetry	Submerged Aquatic Habitat	Endangered/Threat. Species	Exotic Species	Fish	Invertebrates	Land-cover	Phytoplankton/Zooplankton	Upland Habitat	Wetland Habitat	Wildlife	Birds	Agriculture	Contaminated Sites	Cultural Sites	Oil/Hazmat Spills/Groundings	Industry	Land Use	Population/Housing	Recreation	Transportation	Political/Jurisdictional Boundaries	Protected Areas	Hydrologic Information	Runoff (N,P,S,)	Wastewater Discharge(P, S,)	Water Control Structures	Water Quality	Water Use
National Oceanic and Atmospheric Administration																																			
NOAA-1 NOAA-2 Coastal Change Analysis Program (C-CAP)									■					■		■	■																		
NOAA-3 South Florida Ecosystem Restoration Project Support A - Monitoring, Gauging, and Sampling Sites (NOS/FDEC)			■		■				■																								■	
NOAA-4 South Florida Ecosystem Restoration Project Support B - Water Diversions/Flows (NOS/SFWMD/FDEP)																																■		
NOAA-5 South Florida Ecosystem Restoration Project Support C - Regional Bathymetry (NOS)								■																										
NOAA-6 South Florida Ecosystem Restoration Project Support D - Benthic Habitat (NOS/NMFS)						■	■										■																	
NOAA-7 South Florida Ecosystem Restoration Project Support E - Benthic Structures (NOS)						■	■		■																									
NOAA-8 NOAA-9 NOAA-10 NOAA-11 Florida Keys National Marine Sanctuary					■	■	■		■														■				■		■					
NOAA-12 NOAA-13 NOAA-14 National Status and Trends Program (NOS)							■					■	■																					
NOAA-15 South Florida Ecosystem Restoration Project Support F - Land Cover, Wetlands (NOS/NMFS)														■		■	■																	
NOAA-16 Faunal Responses to Habitat Changes in Florida Bay (Beaufort Lab)					■	■	■		■			■	■			■	■																	
NOAA-17 Compile Historical Information for Florida Bay Impacts (NOS/RSMAS)			■		■	■	■		■			■	■													■								
NOAA-18 Collection and Assemblage of AVHRR Coastal Satellite Imagery (NMFS/RSMAS)					■								■																	■				
NOAA-19 The Sediment Record as a Monitor of Natural and Anthropogenic Changes (OAR/RSMAS/FIT)						■	■																											
NOAA-20 Monitor Responses of Fish and Shellfish to Habitat Changes (NMFS/NBS)												■	■																					
NOAA-21 Sampling of Commercially and Recreationally Important Species (NMFS)												■																						
NOAA-22 Monitoring Marine Mammals and Evaluating Methods to Utilize as Ecosystem Health Indicators (NMFS)																		■																
NOAA-23 Initiate a Bioeffects Survey (NOS/NMFS/Dade Cnty.)							■					■	■																					
NOAA-24 *Archival of Data (NESDIS)*			■		■																													
NOAA-25 NOAA South Florida Contaminants Committee (NMFS/OAR/FDEP)																																		

Program Name		Abiotic Environments (A)								Biotic Environments (B)										Human Activities/Jurisdictions (H)										Water (W)							
		Air Quality	Beaches/Shores	Climatology/Meteorology	Geologic	Hydrography	Seafloor Characteristics	Soils/Substrates	Topography/Bathymetry	Submerged Aquatic Habitat	Endangered/Threat. Species	Exotic Species	Fish	Invertebrates	Land-cover	Phytoplankton/Zooplankton	Upland Habitat	Wetland Habitat	Wildlife	Birds	Agriculture	Contaminated Sites	Cultural Sites	Oil/Hazmat Spills/Groundings	Industry	Land Use	Population/Housing	Recreation	Transportation	Political/Jurisdictional Boundaries	Protected Areas	Hydrologic Information	Runoff (N,P,S.)	Wastewater Discharge(P, S.)	Water Control Structures	Water Quality	Water Use
National Oceanic and Atmospheric Administration Continued																																			
NOAA-26	Circulation Modelling Workshop Report (NOS/NPS)					■																													
NOAA-27	Mesoscale Atmospheric Modelling Applied to the South Florida Ecosystem (OAR/NWS/SFWMD)			■																															
NOAA-28	Regional Numerical Ocean Circulation Modelling System (OAR/NWS/PSMAS/FIT)					■																													
NOAA-29	Evaluate Seagrass Habitat Health and Community Diversity--Compare with Historical Information (NMFS)									■			■																						
NOAA-30	Environmental Controls Upon Algal Blooms, Food Web Structure, and Carbon Flow (OAR/SFWMD/FDEP)															■																			
NOAA-31	Relationship of Pink Shrimp Cohorts on Nursery Grounds to Fishery Productivity (NMFS/PSMAS/NBS)													■																					
NOAA-32	Pesticide Analysis of Agricultural Nonpoint Source Waters (NMFS/FDEP)												■		■																		■			
NOAA-33	Zooplankton Abundance and Grazing Potential (NOAA)															■																			
NOAA-34	NOAA Program Data Operational Support					■																													
NOAA-35	National Weather Service/Office of Hydrology			■																															
NOAA-36	Nautical Charting Program							■	■																				■						
NOAA-37	Remote Sensing of Salinity and Ocean Color Spatial Patterns in Florida Bay					■										■																			
National Park Service																																			
NPS-1	Inventorying and Monitoring Program (Everglades National Park)					■					■		■					■	■													■			
NPS-2	Big Cypress National Park Data Base					■						■						■	■						■				■		■				
NPS-3	Biscayne National Park Resource Management Program						■		■																						■			■		
NPS-4	Everglades National Park GIS Program			■		■			■						■				■												■				
NPS-5	Visibility Monitoring Program	■																																	

Program Name	Abiotic Environments (A)								Biotic Environments (B)										Human Activities/Jurisdictions (H)										Water (W)							
	Air Quality	Beaches/Shores	Climatology/Meteorology	Geologic	Hydrography	Seafloor Characteristics	Soils/Substrates	Topography/Bathymetry	Submerged Aquatic Habitat	Endangered/Threat. Species	Exotic Species	Fish	Invertebrates	Land-cover	Phytoplankton/Zooplankton	Upland Habitat	Wetland Habitat	Wildlife	Birds	Agriculture	Contaminated Sites	Cultural Sites	Oil/Hazmat Spills/Groundings	Industry	Land Use	Population/Housing	Recreation	Transportation	Political/Jurisdictional Boundaries	Protected Areas	Hydrologic Information	Runoff (N,P,S,)	Wastewater Discharge(P, S,)	Water Control Structures	Water Quality	Water Use
U.S. Department of Agriculture																																			
USDA-1 Sugarcane Germplasm Enhancement (*Agricultural Research Service*)																																			
USDA-2 Limitations of Environmental Stresses and Physiological Response on Crop Productivity (Agricultural Research Service)																																			
USDA-3 Carbon Dioxide Climatic Change Effects of Crops (Agricultural Research Service)																																			
USDA-4 Biological Control of Aquatic and Wetland Weeds for Protection of Groundwater Quality (Agricultural Research Service)																																			
USDA-5 Soil Surveys and Hydrology (Soil Conservation Service)																																			
U.S. Geological Survey																																			
USGS-1 Southern Florida National Water Quality Assessment (SOFL-NAWQA)																																			
USGS-2 Water Resources Division																																			
USGS-3 Support for the South Florida Ecosystem Restoration Task Force																																			
State																																			
Florida Department of Community Affairs																																			
FDCA-1 Coastal Information Exchange																																			
FDCA-2 Division of Resource Planning & Management																																			
FDCA-3 Establish Geographic Database of Developments of Regional Impact																																			
Florida Department of Environmental Protection																																			
FDEP-1 Florida Geological Survey (Technical Services Division)																																			
FDEP-2 Bureau of Information Systems/GIS Program																																			
FDEP-3 Park Management (Recreation and Parks)																																			
FDEP-4 Artificial Reef Program (Office of Fisheries Management)																																			
FDEP-5 Ground Water Quality Monitoring Program (Division of Water Facilities)																																			

Program Name	Abiotic Environments (A)								Biotic Environments (B)										Human Activities/Jurisdictions (H)										Water (W)							
	Air Quality	Beaches/Shores	Climatology/Meteorology	Geologic	Hydrography	Seafloor Characteristics	Soils/Substrates	Topography/Bathymetry	Submerged Aquatic Habitat	Endangered/Threat. Species	Exotic Species	Fish	Invertebrates	Land-cover	Phytoplankton/Zooplankton	Upland Habitat	Wetland Habitat	Wildlife	Birds	Agriculture	Contaminated Sites	Cultural Sites	Oil/Hazmat Spills/Groundings	Industry	Land Use	Population/Housing	Recreation	Transportation	Political/Jurisdictional Boundaries	Protected Areas	Hydrologic Information	Runoff (N.P.S.)	Wastewater Discharge(P. S.)	Water Control Structures	Water Quality	Water Use
Florida Department of Environmental Protection Continued																																			
FDEP-6 319 Grant Program - Western Everglades Restoration Project (FDEP/SFWMD)																																			
FDEP-7 Nonpoint Source Bioassessment Program																																			
FDEP-8 Surface Water Quality Data Collection and Assessment (Division of Water Facilities)																																			
FDEP-9 Shellfish Harvesting Area Classification and Management (Division of Marine Resources)																																			
FDEP-10 Coastal and Aquatic Area Management (Division of Marine Resources)																																			
FDEP-11 Florida Air Quality Monitoring Program (Division of Air Resources)																																			
FDEP-12 Permit Site Application Assessment A (Division of Environmental Resource Permitting)																																			
FDEP-13 Permit Site Application Assessment B (Division of Environmental Resource Permitting)																																			
FDEP-14 Mandatory Nonphosphate Reclamation (Bureau of Mine Reclamation)																																			
FDEP-15 Permit Site Application Assessment C (Division of Environmental Resource Permitting)																																			
FDEP-16 South Florida District																																			
FDEP-17 NPDES Outfall Location																																			
FDEP-18 Pollutant Discharge Prevention and Response Program																																			
FDEP-19 FMRI-1: Marine Resources																																			
FDEP-20 FMRI-2: Marine Resources																																			
FDEP-21 Wetlands Regulation Tracking and Assessment																																			
FDEP-22 Living Marine Resources																																			
FDEP-23 Beach Access Enhancement																																			
FDEP-24 Air Resources Management																																			
FDEP-25 CERCLA Site Screening Section/Technical Review Section																																			
FDEP-26 Federal Facilities-Technical Review Section																																			
FDEP-27 Bureau of Waste Cleanup - Storage Tank Regulation																																			
FDEP-28 Florida Mercury Research Program																																			


Abiotic Environments (A)
Biotic Environments (B)
Human Activities/Jurisdictions (H)
Water (W)
Air Quality
Beaches/Shores
Climatology/Meteorology
Geologic
Hydrography
Seafloor Characteristics
Soils/Substrates
Topography/Bathymetry
Submerged Aquatic Habitat
Endangered/Threat. Species
Exotic Species
Fish
Invertebrates
Land-cover
Phytoplankton/Zooplankton
Upland Habitat
Wetland Habitat
Wildlife
Birds
Agriculture
Contaminated Sites
Cultural Sites
Oil/Hazmat Spills/Groundings
Industry
Land Use
Population/Housing
Recreation
Transportation
Political/Jurisdictional Boundaries
Protected Areas
Hydrologic Information
Runoff (N.P.S.)
Wastewater Discharge(P. S.)
Water Control Structures
Water Quality
Water Use
Program Name
Florida Game and Freshwater Fish Commission
FGFC-1 Nongame Habitat Protection and Restoration (Office of Environmental Services)
FGFC-2 Nongame Wildlife Survey & Monitoring (Division of Wildlife)
FGFC-3 Wildlife Research (Division of Wildlife)
FGFC-4 Wildlife Management (Division of Wildlife)
FGFC-5 Wildlife Species Management (Division of Wildlife)
FGFC-6 Fisheries Management (Division of Fisheries)
FGFC-7 Fisheries Research (Division of Fisheries)
Office of the Governor
OG-1 Federal Consistency
OG-2 Automated Central Information Directory
Regional
South Florida Water Management District
SFWMD-1 South Florida Boundaries
SFWMD-2 SFWMD GIS Database
SFWMD-3 Hydrography
SFWMD-4 Public Land
SFWMD-5 Land Use/Cover
SFWMD-6 Monitor Stations
SFWMD-7 Water Use Permits
SFWMD-8 Demographic Data
SFWMD-9 Soil Data
SFWMD-10 Transportation
SFWMD-11 WQ Monitoring of FL Bay

Local	Program Name	Abiotic Environments (A)								Biotic Environments (B)										Human Activities/Jurisdictions (H)										Water (W)					
		Air Quality	Beaches/Shores	Climatology/Meteorology	Geologic	Hydrography	Seafloor Characteristics	Soils/Substrates	Topography/Bathymetry	Submerged Aquatic Habitat	Endangered/Threat. Species	Exotic Species	Fish	Invertebrates	Land-cover	Phytoplankton/Zooplankton	Upland Habitat	Wetland Habitat	Wildlife	Birds	Agriculture	Contaminated Sites	Cultural Sites	Oil/Hazmat Spills/Groundings	Industry	Land Use	Population/Housing	Recreation	Transportation	Political/Jurisdictional Boundaries	Protected Areas	Hydrologic Information	Runoff (N.P.S.)	Wastewater Discharge(P. S.)	Water Control Structures	Water Quality	Water Use
Dade County (DERM)																																			
Dade-1	Ambient Groundwater (DERM)																																		
Dade-2	General Canal (DERM)																																		
Dade-3	Natural Areas Inventory (DERM)																																		
Dade-4	Northwest Wellfield Monitoring (DERM)																																		
Dade-5	Alexander Orr Wellfield Monitoring (DERM)																																		
Dade-6	Biscayne Bay Surface Water Quality Monitoring Program (DERM)																																		
Dade-7	West Wellfield Monitoring (DERM)																																		
Monroe County																																			
MC-1	Monroe County GIS Program																																		
MC-2	Advance Identification of Wetlands for the Florida Keys																																		
MC-3	Channel Marking Plan																																		
MC-4	Florida Keys Hardwood Hammock																																		
MC-5	Cesspool Identification and Elimination Project																																		

Program Name		Abiotic Environments (A)								Biotic Environments (B)										Human Activities/Jurisdictions (H)										Water (W)					
		Air Quality	Beaches/Shores	Climatology/Meteorology	Geologic	Hydrography	Seafloor Characteristics	Soils/Substrates	Topography/Bathymetry	Submerged Aquatic Habitat	Endangered/Threat. Species	Exotic Species	Fish	Invertebrates	Land-cover	Phytoplankton/Zooplankton	Upland Habitat	Wetland Habitat	Wildlife	Birds	Agriculture	Contaminated Sites	Cultural Sites	Oil/Hazmat Spills/Groundings	Industry	Land Use	Population/Housing	Recreation	Transportation	Political/Jurisdictional Boundaries	Protected Areas	Hydrologic Information	Runoff (N.P.S.)	Wastewater Discharge(P. S.)	Water Control Structures	Water Quality	Water Use
Palm Beach County																																			
Palm-1	Wellfield Protection																																		
Palm-2	Water Quality Monitoring																																		
Palm-3	NPDES																																		
Palm-4	Pollutant Storage Tanks and Petroleum Containment Cleanup Sites																																		
Palm-5	Hazardous Waste Sites																																		
Palm-6	Environmentally Sensitive Lands																																		
Palm-7	Jurisdictional Wetlands																																		
Palm-8	Land Use																																		
Palm-9	Solid Waste																																		
Palm-10	Palm Beach Cnty. GIS																																		
Palm-11	Shoreline Protection Section																																		
Palm-12	Shore Protection - Dune Restoration																																		
Palm-13	Environmental Resources Management																																		
Palm-14	Shore Protection Section - Coastal Property																																		
Palm-15	Shoreline Protection Section																																		
Palm-16	Shore Protection - Palm Beach/South Palm Beach																																		
Palm-17	Shore Protection - Sea Turtles																																		
Palm-18	Environmental Enhancement Section																																		

Appendix D: Programs Associated by Data Categories

Abiotic Environments

Air Quality

Agency	Program Name
ACOE-1	Water Management Decision Support System (Jacksonville District)
NPS-5	Visibility Monitoring Program
FDEP-11	Florida Air Quality Monitoring Program (Division of Air Resources)
FDEP-16	South Florida District
FDEP-24	Air Resources Management
FDEP-28	Florida Mercury Research Program

Beaches/Shores

Agency	Program Name
ACOE-5	Coast of Florida Erosion & Storm Effects Study (Jacksonville District)
NOAA-36	Nautical Charting Program
FDEP-23	Beach Access Enhancement
MC-1	Monroe County GIS Program
Palm-11	Shoreline Protection Section
Palm-12	Shore Protection - Dune Restoration
Palm-13	Environmental Resources Management
Palm-14	Shore Protection Section - Coastal Property
Palm-18	Environmental Enhancement Section

Climatology/Meteorology

Agency	Program Name
NOAA-3	South Florida Ecosystem Restoration Project Support A - Monitoring, Gauging, and Sampling Sites (NOS/FDEC)
NOAA-17	Compile Historical Information for Florida Bay Impacts (NOS/RSMAS)
NOAA-24	Archival of Data (NESDIS)
NOAA-27	Mesoscale Atmospheric Modelling Applied to the South Florida Ecosystem (OAR/NWS/SFWMD)
NOAA-35	National Weather Service/Office of Hydrology
NPS-1	Inventorying and Monitoring Program (Everglades National Park)
NPS-4	Everglades National Park GIS Program
SFWMD-2	SFWMD GIS Database
SFWMD-6	Monitor Stations

Geologic

Agency	Program Name
ACOE-5	Coast of Florida Erosion & Storm Effects Study (Jacksonville District)
NOAA-17	Compile Historical Information for Florida Bay Impacts (NOS/RSMAS)
FDEP-1	Florida Geological Survey (Technical Services Division)

Hydrography

Agency	Program Name
ACOE-4	Survey Branch/Engineering Division (Jacksonville District)
ACOE-5	Coast of Florida Erosion & Storm Effects Study (Jacksonville District)
EPA-2	Environmental Monitoring and Assessment Program (EMAP) - Estuaries
NOAA-3	South Florida Ecosystem Restoration Project Support A - Monitoring, Gauging, and Sampling Sites (NOS/FDEC)
NOAA-8 NOAA-9 NOAA-10 NOAA-11	Florida Keys National Marine Sanctuary
NOAA-16	Faunal Responses to Habitat Changes in Florida Bay (Beaufort Lab)
NOAA-18	Collection and Assemblage of AVHRR Coastal Satellite Imagery (NMFS/RSMAS)
NOAA-24	Archival of Data (NESDIS)
MOAA-26	Circulation Modelling Workshop Report (NOS/NPS)
NOAA-28	Regional Numerical Ocean Circulation Modelling System (OAR/NWS/RSMAS/FIT)
NOAA-34	NOAA Program Data Operational Support
NOAA-37	Remote Sensing of Salinity and Ocean Color Spatial Patterns in Florida Bay
NPS-1	Inventorying and Monitoring Program (Everglades National Park)
NPS-2	Big Cypress National Park Data Base
NPS-4	Everglades National Park GIS Program
FDEP-2	Bureau of Information Systems/GIS Program
FDEP-12	Permit Site Application Assessment A (Division of Environmental Resource Permitting)
SFWMD-2	SFWMD GIS Database
SFWMD-3	Hydrography

Seafloor Characteristics

Agency	Program Name
ACOE-5	Coast of Florida Erosion & Storm Effects Study (Jacksonville District)
NOAA-6	South Florida Ecosystem Restoration Project Support D - Benthic Habitat (NOS/NMFS)
NOAA-7	South Florida Ecosystem Restoration Project Support E - Benthic Structures (NOS)
NOAA-16	Faunal Responses to Habitat Changes in Florida Bay (Beaufort Lab)
NOAA-17	Compile Historical Information for Florida Bay Impacts (NOS/RSMAS)
NOAA-19	The Sediment Record as a Monitor of Natural and Anthropogenic Changes (OAR/RSMAS/FIT)
NOAA-36	Nautical Charting Program
NPS-3	Biscayne National Park Resource Management Program
Palm-11	Shoreline Protection Section
Palm-16	Shore Protection - Palm Beach/South Palm Beach

Abiotic Environments (continued)

Soils/Substrates

Agency	Program Name
EPA-1	Everglades Mercury Study (REMAP)
EPA-2	Environmental Monitoring and Assessment Program (EMAP) - Estuaries
NOAA-6	South Florida Ecosystem Restoration Project Support D - Benthic Habitat (NOS/NMFS)
NOAA-7	South Florida Ecosystem Restoration Project Support E - Benthic Structures (NOS)
NOAA-8 NOAA-9 NOAA-10 NOAA-11	Florida Keys National Marine Sanctuary
NOAA-12 NOAA-13 NOAA-14	National Status and Trends Program (NOS)
NOAA-16	Faunal Responses to Habitat Changes in Florida Bay (Beaufort Lab)
NOAA-17	Compile Historical Information for Florida Bay Impacts (NOS/RSMAS)
NOAA-19	The Sediment Record as a Monitor of Natural and Anthropogenic Changes (OAR/RSMAS/FIT)
NOAA-23	Initiate a Bioeffects Survey (NOS/NMFS/Dade Cnty.)
NOAA-36	Nautical Charting Program
USDA-1	Sugarcane Germplasm Enhancement (Agricultural Research Service)
USDA-2	Limitations of Environmental Stresses and Physiological Response on Crop Productivity (Agricultural Research Service)
USDA-5	Soil Surveys and Hydrology (Soil Conservation Service)
FDEP-2	Bureau of Information Systems/GIS Program
FDEP-6	319 Grant Program - Western Everglades Restoration Project (FDEP/SFWMD)
SFWMD-2	SFWMD GIS Database
SFWMD-9	Soil Data
Dade-6	Biscayne Bay Surface Water Quality Monitoring Program (DERM)

Topography/Bathymetry

Agency	Program Name
ACOE-4	Survey Branch/Engineering Division (Jacksonville District)
ACOE-5	Coast of Florida Erosion & Storm Effects Study (Jacksonville District)
NOAA-5	South Florida Ecosystem Restoration Project Support C - Regional Bathymetry (NOS)
NOAA-36	Nautical Charting Program
NPS-3	Biscayne National Park Resource Management Program
NPS-4	Everglades National Park GIS Program
USGS-3	Support for the South Florida Ecosystem Restoration Task Force
FDEP-14	Mandatory Nonphosphate Reclamation (Bureau of Mine Reclamation)
SFWMD-1	South Florida Boundaries
Palm-11	Shoreline Protection Section
Palm-12	Shore Protection - Dune Restoration
Palm-13	Environmental Resources Management
Palm-15	Shoreline Protection Section
Palm-16	Shore Protection - Palm Beach/South Palm Beach
Palm-18	Environmental Enhancement Section

Biotic Environments

Sumberged Aquatic Habitat

Agency	Program Name
EPA-3	Florida Keys Water Quality Protection Program (EPA/FDEP)
FWS-3	Ecological Services - Vero Beach Field Office
NOAA-1 NOAA-2	Coastal Change Analysis Program (C-CAP)
NOAA-8 NOAA-9 NOAA-10 NOAA-11	Florida Keys National Marine Sanctuary
NOAA-17	Compile Historical Information for Florida Bay Impacts (NOS/RSMAS)
NOAA-29	Evaluate Seagrass Habitat Health and Community Diversity--Compare with Historical Information (NMFS)
FDEP-4	Artificial Reef Program (Office of Fisheries Management)
FDEP-10	Coastal and Aquatic Area Management (Division of Marine Resources)
FDEP-19	FMRI-1: Marine Resources
FDEP-21	Wetlands Regulation Tracking and Assessment
MC-3	Channel Marking Plan
Palm-11	Shoreline Protection Section
Palm-16	Shore Protection - Palm Beach/South Palm Beach
Palm-18	Environmental Enhancement Section

Endangered/Threatened Species

Agency	Program Name
FWS-3	Ecological Services - Vero Beach Field Office
NPS-1	Inventorying and Monitoring Program (Everglades National Park)
FDEP-3	Park Management (Recreation and Parks)
FDEP-19	FMRI-1: Marine Resources
FDEP-20	FMRI-2: Marine Resources
FGFC-1	Nongame Habitat Protection and Restoration (Office of Environmental Services)
FGFC-3	Wildlife Research (Division of Wildlife)
FGFC-4	Wildlife Management (Division of Wildlife)
FGFC-5	Wildlife Species Management (Division of Wildlife)
Dade-3	Natural Areas Inventory (DERM)
MC-4	Florida Keys Hardwood Hammock
Palm-17	Shore Protection - Sea Turtles
Palm-18	Environmental Enhancement Section

Biotic Environments (continued)

Exotic Species

Agency	Program Name
NPS-2	Big Cypress National Park Data Base
FDEP-3	Park Management (Recreation and Parks)
FGFC-7	Fisheries Research (Division of Fisheries)
MC-4	Florida Keys Hardwood Hammock

Invertebrates

Agency	Program Name
EPA-2	Environmental Monitoring and Assessment Program (EMAP) - Estuaries
NOAA-12 NOAA-13 NOAA-14	National Status and Trends Program (NOS)
NOAA-16	Faunal Responses to Habitat Changes in Florida Bay (Beaufort Lab)
NOAA-20	Monitor Responses of Fish and Shellfish to Habitat Changes (NMFS/NBS)
NOAA-23	Initiate a Bioeffects Survey (NOS/NMFS/Dade Cnty.)
NOAA-31	Relationship of Pink Shrimp Cohorts on Nursery Grounds to Fishery Productivity (NMFS/RSMAS/NBS)
NOAA-32	Pesticide Analysis of Agricultural Nonpoint Source Waters (NMFS/FDEP)
FDEP-6	319 Grant Program - Western Everglades Restoration Project (FDEP/SFWMD)
FDEP-7	Nonpoint Source Bioassessment Program
FDEP-9	Shellfish Harvesting Area Classification and Management (Division of Marine Resources)
FDEP-19	FMRI-1: Marine Resources
FGFC-6	Fisheries Management (Division of Fisheries)

Fish

Agency	Program Name
EPA-1	Everglades Mercury Study (REMAP)
EPA-2	Environmental Monitoring and Assessment Program (EMAP) - Estuaries
NOAA-12 NOAA-13 NOAA-14	National Status and Trends Program (NOS)
NOAA-16	Faunal Responses to Habitat Changes in Florida Bay (Beaufort Lab)
NOAA-17	Compile Historical Information for Florida Bay Impacts (NOS/RSMAS)
NOAA-20	Monitor Responses of Fish and Shellfish to Habitat Changes (NMFS/NBS)
NOAA-21	Sampling of Commercially and Recreationally Important Species (NMFS)
NOAA-23	Initiate a Bioeffects Survey (NOS/NMFS/Dade Cnty.)
NOAA-29	Evaluate Seagrass Habitat Health and Community Diversity–Compare with Historical Information (NMFS)
NOAA-32	Pesticide Analysis of Agricultural Nonpoint Source Waters (NMFS/FDEP)
NPS-1	Inventorying and Monitoring Program (Everglades National Park)
FDEP-6	319 Grant Program - Western Everglades Restoration Project (FDEP/SFWMD)
FDEP-19	FMRI-1: Marine Resources
FDEP-20	FMRI-2: Marine Resources
FGFC-6	Fisheries Management (Division of Fisheries)
FGFC-7	Fisheries Research (Division of Fisheries)

Land-cover

Agency	Program Name
ACOE-3	Central and S. Florida Project Restudy (B) (Jacksonville District)
NBS-1	Florida Biological Diversity Project
NBS-2	Long-term Fire Ecology (Big Cypress National Preserve)
NOAA-1 NOAA-2	Coastal Change Analysis Program (C-CAP)
NOAA-15	South Florida Ecosystem Restoration Project Support F - Land Cover, Wetlands (NOS/NMFS)
NPS-4	Everglades National Park GIS Program
FDEP-10	Coastal and Aquatic Area Management (Division of Marine Resources)
FDEP-12	Permit Site Application Assessment A (Division of Environmental Resource Permitting)
FGFC-1	Nongame Habitat Protection and Restoration (Office of Environmental Services)
SFWMD-2	SFWMD GIS Database
SFWMD-5	Land Use/Cover
MC-2	Advance Identification of Wetlands for the Florida Keys
Palm-1	Wellfield Protection
Palm-6	Environmentally Sensitive Lands
Palm-8	Land Use

Phytoplankton/Zooplankton

Agency	Program Name
EPA-2	Environmental Monitoring and Assessment Program (EMAP) - Estuaries
NOAA-30	Environmental Controls Upon Algal Blooms, Food Web Structure, and Carbon Flow (OAR/SFWMD/FDEP)
NOAA-33	Zooplankton Abundance and Grazing Potential (NOAA)
NOAA-37	Remote Sensing of Salinity and Ocean Color Spatial Patterns in Florida Bay
FDEP-19	FMRI-1: Marine Resources

Upland Habitat

Agency	Program Name
NBS-1	Florida Biological Diversity Project
NBS-2	Long-term Fire Ecology (Big Cypress National Preserve)
NOAA-1 NOAA-2	Coastal Change Analysis Program (C-CAP)
NOAA-15	South Florida Ecosystem Restoration Project Support F - Land Cover, Wetlands (NOS/NMFS)
FDEP-3	Park Management (Recreation and Parks)
FGFC-1	Nongame Habitat Protection and Restoration (Office of Environmental Services)
Dade-3	Natural Areas Inventory (DERM)
MC-1	Monroe County GIS Program
MC-4	Florida Keys Hardwood Hammock
Palm-6	Environmentally Sensitive Lands

Biotic Environments (continued)

Wetland Habitat

Agency	Program Name
ACOE-3	Central and S. Florida Project Restudy (B) (Jacksonville District)
ACOE-6	Regulatory Analysis & Management System
EPA-2	Environmental Monitoring and Assessment Program (EMAP) - Estuaries
EPA-4 thru EPA-9	Wetlands Advance Identification Projects
FWS-1	National Wetlands Inventory (A) - Wetland Status and Trends
FWS-2	National Wetlands Inventory (B)
FWS-3	Ecological Services - Vero Beach Field Office
NBS-1	Florida Biological Diversity Project
NOAA-1 NOAA-2	Coastal Change Analysis Program (C-CAP)
NOAA-6	South Florida Ecosystem Restoration Project Support D - Benthic Habitat (NOS/NMFS)
NOAA-15	South Florida Ecosystem Restoration Project Support F - Land Cover, Wetlands (NOS/NMFS)
NOAA-16	Faunal Responses to Habitat Changes in Florida Bay (Beaufort Lab)
NPS-1	Inventorying and Monitoring Program (Everglades National Park)
NPS-2	Big Cypress National Park Data Base
USDA-3	Carbon Dioxide Climatic Change Effects of Crops (Agricultural Research Service)
USDA-4	Biological Control of Aquatic and Wetland Weeds for Protection of Groundwater Quality (Agricultural Research Service)
FDEP-2	Bureau of Information Systems/GIS Program
FDEP-6	319 Grant Program - Western Everglades Restoration Project (FDEP/SFWMD)
FDEP-12	Permit Site Application Assessment A (Division of Environmental Resource Permitting)
FDEP-13	Permit Site Application Assessment B (Division of Environmental Resource Permitting)
FDEP-19	FMRI-1: Marine Resources
FDEP-21	Wetlands Regulation Tracking and Assessment
FGFC-1	Nongame Habitat Protection and Restoration (Office of Environmental Services)
SFWMD-2	SFWMD GIS Database
Dade-3	Natural Areas Inventory (DERM)
MC-1	Monroe County GIS Program
MC-2	Advance Identification of Wetlands for the Florida Keys
Palm-6	Environmentally Sensitive Lands
Palm-7	Jurisdictional Wetlands

Wildlife

Agency	Program Name
FWS-3	Ecological Services - Vero Beach Field Office
NBS-1	Florida Biological Diversity Project
NOAA-22	Monitoring Marine Mammals and Evaluating Methods to Utilize as Ecosystem Health Indicators (NMFS)
NPS-1	Inventorying and Monitoring Program (Everglades National Park)
NPS-2	Big Cypress National Park Data Base
NPS-4	Everglades National Park GIS Program
FDEP-3	Park Management (Recreation and Parks)
FGFC-1	Nongame Habitat Protection and Restoration (Office of Environmental Services)
FGFC-3	Wildlife Research (Division of Wildlife)
FGFC-4	Wildlife Management (Division of Wildlife)
FGFC-5	Wildlife Species Management (Division of Wildlife)

Birds

Agency	Program Name
FDEP-3	Park Management (Recreation and Parks)
FGFC-2	Nongame Wildlife Survey & Monitoring (Division of Wildlife)
FGFC-3	Wildlife Research (Division of Wildlife)
FGFC-4	Wildlife Management (Division of Wildlife)
FGFC-5	Wildlife Species Management (Division of Wildlife)

Human Activities/Jurisdictions

Agriculture

Agency	Program Name
USDA-1	Sugarcane Germplasm Enhancement (Agricultural Research Service)
USDA-2	Limitations of Environmental Stresses and Physiological Response on Crop Productivity (Agricultural Research Service)
USDA-3	Carbon Dioxide Climatic Change Effects of Crops (Agricultural Research Service)
USDA-4	Biological Control of Aquatic and Wetland Weeds for Protection of Groundwater Quality (Agricultural Research Service)

Contaminated Sites

Agency	Program Name
EPA-10	EnviroFacts Project
FDEP-25	CERCLA Site Screening Section/Technical Review Section
FDEP-26	Federal Facilities-Techincal Review Section
FDEP-27	Bureau of Waste Cleanup - Storage Tank Regulation
FDEP-28	Florida Mercury Research Program
Palm-4	Pollutant Storage Tanks and Petroleum Containment Cleanup Sites
Palm-5	Hazardous Waste Sites
Palm-9	Solid Waste

Cultural SIte s

Agency	Program Name
NOAA-8 NOAA-9 NOAA-10 NOAA-11	Florida Keys National Marine Sanctuary
NPS-2	Big Cypress National Park Data Base

Oi/Hazardous Materials Spills - Groundings

Agency	Program Name
NOAA-8 NOAA-9 NOAA-10 NOAA-11	Florida Keys National Marine Sanctuary
FDEP-18	Pollutant Discharge Prevention and Response Program

Industry

Agency	Program Name
EPA-10	EnviroFacts Project
NPS-2	Big Cypress National Park Data Base
FDEP-14	Mandatory Nonphosphate Reclamation (Bureau of Mine Reclamation)
FDEP-17	NPDES Outfall Location

Population/Housing

Agency	Program Name
ACOE-2	Central and S. Florida Project Restudy (A) (Jacksonville District)
EPA-11	Spatial Data Clearinghouse
NOAA-17	Compile Historical Information for Florida Bay Impacts (NOS/RSMAS)
FDCA-2	Division of Resource Planning & Management
FDCA-3	Establish Geographic Database of Developments of Regional Impact
SFWMD-2	SFWMD GIS Database
SFWMD-8	Demographic Data
MC-1	Monroe County GIS Program
Palm-8	Land Use

Land Use

Agency	Program Name
EPA-11	Spatial Data Clearinghouse
FDCA-2	Division of Resource Planning & Management
FDEP-2	Bureau of Information Systems/GIS Program
FDEP-5	Ground Water Quality Monitoring Program (Division of Water Facilities)
FDEP-10	Coastal and Aquatic Area Management (Division of Marine Resources)
FDEP-12	Permit Site Application Assessment A (Division of Environmental Resource Permitting)
FDEP-14	Mandatory Nonphosphate Reclamation (Bureau of Mine Reclamation)
FDEP-22	Living Marine Resources
OG-1	Federal Consistency
SFWMD-5	Land Use/Cover
Palm-1	Wellfield Protection
Palm-8	Land Use
Palm-10	Palm Beach Cnty. GIS
Palm-14	Shore Protection Section - Coastal Property
Palm-15	Shoreline Protection Section

Recreation

Agency	Program Name
NOAA-8 NOAA-9 NOAA-10 NOAA-11	Florida Keys National Marine Sanctuary
FDEP-19	FMRI-1: Marine Resources
FDEP-20	FMRI-2: Marine Resources
FGFC-6	Fisheries Management (Division of Fisheries)
MC-3	Channel Marking Plan

Transportation

Agency	Program Name
NOAA-36	Nautical Charting Program
NPS-2	Big Cypress National Park Data Base
FDCA-2	Division of Resource Planning & Management
FDEP-2	Bureau of Information Systems/GIS Program
SFWMD-2	SFWMD GIS Database
SFWMD-10	Transportation
MC-1	Monroe County GIS Program
Palm-10	Palm Beach Cnty. GIS

Human Activities/Jurisdictions (continued)

Political/Jurisdictional Boundaries

Agency	Program Name
FDEP-2	Bureau of Information Systems/GIS Program
FDEP-15	Permit Site Application Assessment C (Division of Environmental Resource Permitting)
SFWMD-1	South Florida Boundaries
SFWMD-4	Public Land
MC-2	Advance Identification of Wetlands for the Florida Keys

Protected Areas

Agency	Program Name
NBS-1	Florida Biological Diversity Project
NOAA-8 NOAA-9 NOAA-10 NOAA-11	Florida Keys National Marine Sanctuary
NPS-2	Big Cypress National Park Data Base
NPS-3	Biscayne National Park Resource Management Program
NPS-4	Everglades National Park GIS Program
FDCA-3	Establish Geographic Database of Developments of Regional Impact
FDEP-10	Coastal and Aquatic Area Management (Division of Marine Resources)
FDEP-13	Permit Site Application Assessment B (Division of Environmental Resource Permitting)
FDEP-15	Permit Site Application Assessment C (Division of Environmental Resource Permitting)
FGFC-4	Wildlife Management (Division of Wildlife)
SFWMD-4	Public Land
Palm-6	Environmentally Sensitive Lands

Water Resources

Hydrologic Information

Agency	Program Name
ACOE-1	Water Management Decision Support System (Jacksonville District)
EPA-1	Everglades Mercury Study (REMAP)
NOAA-3	South Florida Ecosystem Restoration Project Support A - Monitoring, Gauging, and Sampling Sites (NOS/FDEC)
NOAA-18	Collection and Assemblage of AVHRR Coastal Satellite Imagery (NMFS/RSMAS)
NOAA-32	Pesticide Analysis of Agricultural Nonpoint Source Waters (NMFS/FDEP)
NPS-1	Inventorying and Monitoring Program (Everglades National Park)
NPS-4	Everglades National Park GIS Program
USDA-5	Soil Surveys and Hydrology (Soil Conservation Service)
USGS-2	Water Resources Division
FDEP-2	Bureau of Information Systems/GIS Program
FDEP-6	319 Grant Program - Western Everglades Restoration Project (FDEP/SFWMD)
FDEP-17	NPDES Outfall Location
FDEP-25	CERCLA Site Screening Section/Technical Review Section
FDEP-26	Federal Facilities-Technical Review Section
SFWMD-2	SFWMD GIS Database
SFWMD-6	Monitor Stations
Dade-1	Ambient Groundwater (DERM)
Dade-2	General Canal (DERM)
Dade-4	Northwest Wellfield Monitoring (DERM)
Dade-5	Alexander Orr Wellfield Monitoring (DERM)
Dade-7	West Wellfield Monitoring (DERM)
Palm-1	Wellfield Protection

Runoff (NPS)

Agency	Program Name
NOAA-32	Pesticide Analysis of Agricultural Nonpoint Source Waters (NMFS/FDEP)

Wastewater Discharge

Agency	Program Name
EPA-11	Spatial Data Clearinghouse
FDEP-16	South Florida District
FDEP-17	NPDES Outfall Location
MC-5	Cesspool Identification and Elimination Project
Palm-3	NPDES

Water Control Structures

Agency	Program Name
ACOE-2	Central and S. Florida Project Restudy (A) (Jacksonville District)
NOAA-4	South Florida Ecosystem Restoration Project Support B - Water Diversions/Flows (NOS/SFWMD/FDEP)
SFWMD-2	SFWMD GIS Database
SFWMD-6	Monitor Stations

Water Use

Agency	Program Name
USGS-2	Water Resources Division
SFWMD-2	SFWMD GIS Database
SFWMD-6	Monitor Stations
SFWMD-7	Water Use Permits
Palm-1	Wellfield Protection

Water Resources (continued)

Water Quality

Agency	Program Name
EPA-1	Everglades Mercury Study (REMAP)
EPA-2	Environmental Monitoring and Assessment Program (EMAP) - Estuaries
EPA-3	Florida Keys Water Quality Protection Program (EPA/FDEP)
NOAA-3	South Florida Ecosystem Restoration Project Support A - Monitoring, Gauging, and Sampling Sites (NOS/FDEC)
NOAA-32	Pesticide Analysis of Agricultural Nonpoint Source Waters (NMFS/FDEP)
NPS-1	Inventorying and Monitoring Program (Everglades National Park)
NPS-3	Biscayne National Park Resource Management Program
USDA-5	Soil Surveys and Hydrology (Soil Conservation Service)
USGS-1	Southern Florida National Water Quality Assessment (SOFL-NAWQA)
USGS-2	Water Resources Division
FDEP-2	Bureau of Information Systems/GIS Program
FDEP-3	Park Management (Recreation and Parks)
FDEP-5	Ground Water Quality Monitoring Program (Division of Water Facilities)
FDEP-6	319 Grant Program - Western Everglades Restoration Project (FDEP/SFWMD)
FDEP-7	Nonpoint Source Bioassessment Program
FDEP-8	Surface Water Quality Data Collection and Assessment (Division of Water Facilities)
FDEP-9	Shellfish Harvesting Area Classification and Management (Division of Marine Resources)
FDEP-10	Coastal and Aquatic Area Management (Division of Marine Resources)
FDEP-18	Pollutant Discharge Prevention and Response Program
SFWMD-11	WQ Monitoring of FL Bay
Dade-6	Biscayne Bay Surface Water Quality Monitoring Program (DERM)
Dade-7	West Wellfield Monitoring (DERM)
Palm-2	Water Quality Monitoring

Appendix E: Work Group Assignments

Day 1: September 22, 1994

Work Group 1: Biotic Environments

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Rapporteur: Courtney Westlake, FDEP

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Ken Liudahl, SCS
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Sam Patterson, USDA

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Rapporteur: Ruth Roaza, FDEP

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Day 2: September 23, 1994

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Work Group B: Spatial Data and Information Access/Exchange

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